eSymetric

Run.GPS!

Manual for Run.GPS Trainer UV and Run.GPS Trainer UV Pro

Version 2.3.9   February 24th 2011

Content

Run.GPS may NOT be used for car navigation!

Talk to your doctor before you go for intensive sports!

1. Introduction

Run.GPS is your sports companion. It provides you training analysis, training planning and navigation. All you need is a PDA or Smartphone with built-in GPS or an external GPS device.

1.1.Overview: Features

Some of the features **Run.GPS** offers you:

- Beeline **navigation** and route based navigation

- Comprehensive training information, also via **voice output** through your earphones

- **Recording** tracks

- **Analysis** of training sessions, continuous calorie calculation

- Creating speed and altitude **diagrams**

- Importing and displaying raster maps or automatic creation of a map (**Instant Trail Mapping**)

- **Upload** training recordings to the GPS-Sport.net and GPSies.com portal websites

- **Live tracking** of athletes on GPS-Sport.net

- 15 freely configurable screens (6 in **Run.GPS Trainer UV**)

- **Training planning** (**Run.GPS Trainer UV Pro** *only*)

- Creation of **reports** (**Run.GPS Trainer UV Pro** *only*)

1.2.Typical Scenarios

1.2.1.Jogging

Simply put **Run.GPS** without doing any preparation work in your pocket. Optionally download some maps from GPS-Sport.net.

The runner is safely guided back to his/her starting point when running on unknown terrain. After the run a calorie report can be created and the track can be viewed on GPS-Sport.net and the link be sent to friends.

Monatsbericht

Monat	Kalorien (1 🍎 = 3000 kcal)
Aug 2007	13481 kcal 🍎🍎🍎🍎
Sep 2007	12711 kcal 🍎🍎🍎🍎
Okt 2007	11033 kcal 🍎🍎🍎

(Trainer UV Pro only)

1.2.2.Marathon Training
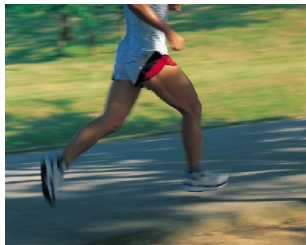
All training units are planned beforehand. The training plan is being synchronized with the Pocket Outlook calendar, with the result that the athlete is always reminded in time of training sessions ahead.

A detailed training analysis follows, enabling the athlete to monitor his or her improvements in performance.

running 8,00km 🔔🔍
18:00-19:00 Do, 11.10.2007

1.2.3.Marathon

The committed sportsman obtains the track data for the competition some weeks before the actual competition. Thus he can run the competition track (or part of it) before the competition using the **Run.GPS** route navigation (with voice output on the earphones).

During the competition the athlete is particularly interested in training data such as the estimated remaining and total time, the current speed and the remaining distance
.

1.2.4.Hiking
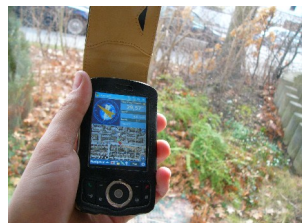
The night before a major hike, the mountaineer downloads the track data and a map for the planned hike from one of the many internet portals offering tour data. Getting lost is virtually impossible and the mountaineer is happy because he or she always knows how much of the track is still ahead.

1.2.5.Race Cycle Riding

A racing biker never has the time to stop and take the map out. Therefore, he or she plans the tour beforehand on the GPS-Sport.net portal. With one click he or she transfers the tour data from the „GPS-Sport.net Route Planner" to his or her PDA.

The PDA is either mounted on the handle bar or the athlete puts it in a bag and listens to the spoken instructions on the earphones.
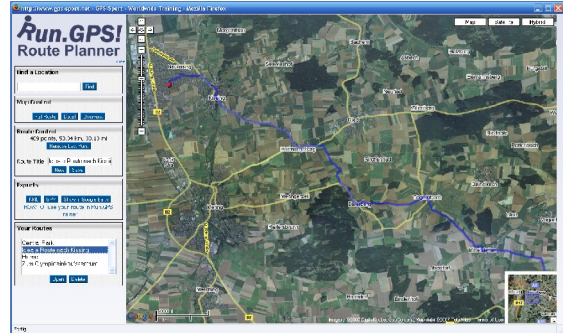
1.2.6.Bike Tour

The entire tour is planned with **Run.GPS** Route Planner. Places of interest are marked with placemarks.

On the tour navigation is the most used **Run.GPS** feature. Sights photographed on the tour are automatically being geo-coded, i.e. displayed in the right spot on the map.
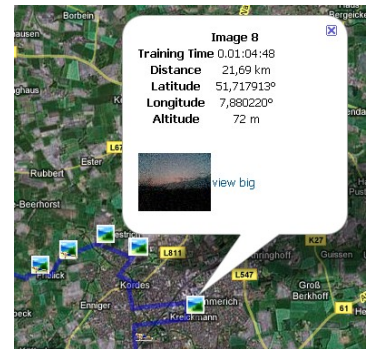
1.2.7.Skiing
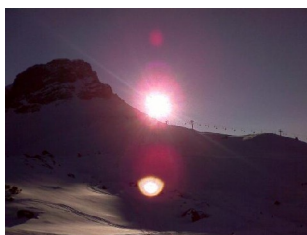
The skier simply put the PDA in his anorak. **Run.GPS** creates a profile of his capabilities (at least regarding speed and endurance): maximum speed, average speed, distance etc. If required **Run.GPS** can lead you back to the starting point.

Ski-lifts and descents can be recognized in the altitude diagram:
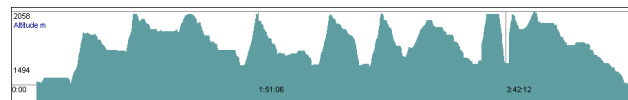
1.2.8.Inline Skating
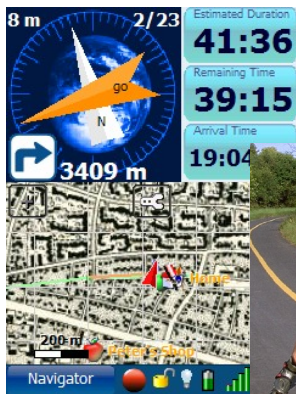
On a portal website like GPSies.com, there are many interesting tours for inline skaters – worldwide. **Run.GPS** is the best tool to follow these tours in a convenient fashion.

1.2.9.Canoeing

Run.GPS leads the canoeist on the best path to the correct exit place and gives advice concerning covered distances and distances ahead.

2. First Steps

2.1.Installation (Windows Mobile)

To install **Run.GPS**, simply go to the download page at www.rungps.net and obtain the correct version for your device.

The EXE installer are always used when installing from a PC, whereas the CAB installers are used when directly installing on the PDA or Smartphone. In the following, only the EXE installers are described.

On Windows Mobile 6 or greater the .Net Compact Framework is already pre-installed and therefore the installer version without the .Net Compact Framework can be chosen.

For installing **Run.GPS**, do the following:

1. Download the correct installation program

2. Connect your mobile device to your PC

3. Start the installation program on the PC by double-clicking it
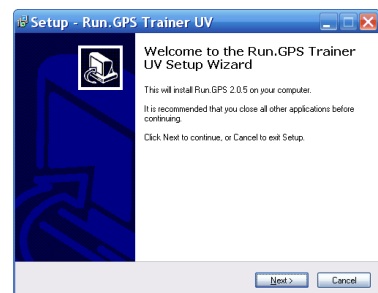
4. Follow the instructions
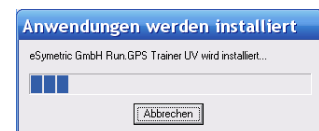
5. Finish the installation by confirming on your mobile device
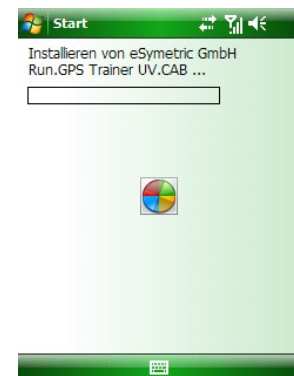
2.2.Installation (Google Android)

There are two ways to install **Run.GPS** on Google Android:

Installation via Android Market

1. Open "Market" app on your Android phone
2. Search for "Run.GPS"
3. You'll get access to trial and full versions

Installation via download from www.rungps.net

1. Install an application manager like "Astro" (you can get it for free from Android Market)
2. Download the Run.GPS APK file from www.rungps.net >> Downloads
3. Copy the file to your smartphone's SD card via USB cable
4. Use the application manager to install the application from your SD card

2.3.First Training Recording

This is a short tutorial on how a first training session can be recorded successfully:

1. Start **Run.GPS**

2. Check the status of the GPS (Main Menu > GPS Status or click on signal strength display)

3. Go outside and maybe put your device to the ground (to avoid movement) in an open spot to ensure optimal reception – wait until the signal quality display says „good"
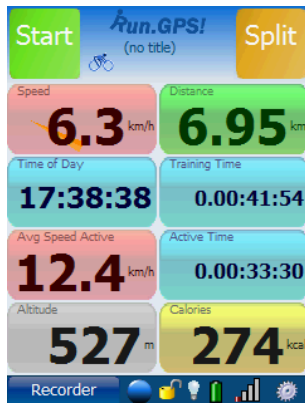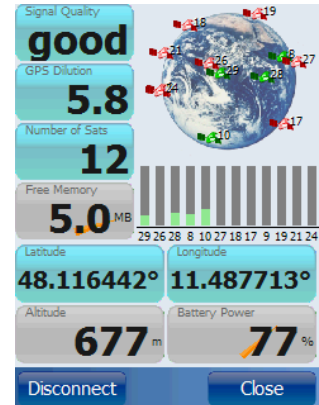
4. Close the GPS status dialog and push the start button

5. Move some hundred meters and push „Stop"

Congratulations! This is your first GPS recording. You can now create an analysis report (**Run.GPS Trainer UV Pro** only) or upload your recording to the GPS-Sport.net portal.

2.4.Licensing and Versions

You can obtain licences fast and easy in our shop at www.RunGPS.net. Licences for the Android versions can also be found on Android Market.
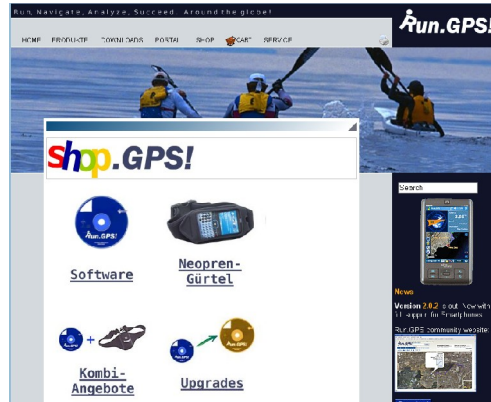
The different licence types "**Run.GPS Lite**", "**Run.GPS Trainer UV**" and "**Run.GPS Trainer UV Pro**" are characterized by the following feature matrix:

Feature	Run.GPS Lite	Run.GPS Trainer UV	Run.GPS Trainer UV Pro
Trainings recording	✔	✔	✔
Training upload	✔	✔	✔
Voice output		✔	✔
Live Tracking		✔	✔
Route Navigation		✔	✔
Online Outdoor Navigation		✔	✔
Displaying raster maps		✔	✔
Direct download of OpenStreetMap maps		✔	✔
Importing routes as KML or GPX		✔	✔
Incremental backup		✔	✔
Instant Trail Mapping	✔	✔	✔
Friend Finder		✔	✔
Route Finder		✔	✔

Feature			
Six user configurable screens		✓	✓
Training planning			✓
Import and Export of training plans			✓
Synchronization with Pocket Outlook (Windows Mobile only)			✓
Online syncing of training plans with GPS-Sport.net portal			✓
Calorie consumption report			✓
Detailed training analyses			✓
Sports report			✓
Week report			✓
Month report			✓
Training comparison report			✓
Exporting training recordings as GPX, KML or CSV			✓
Exporting placemarks as KML or GPX			✓
Fifteen user configurable screens			✓

The Windows Phone 7 release of "Run.GPS Trainer" is a mixture of the Pro and non-Pro version. This is due to restrictions in the operating system, see http://www.rungps.net/wiki/Windows_Phone_7_Restrictions

Supported languages:

	EN	DE	ES	FR	RU	CZ	NL	HE	IT	PT	SE	NO
Program	✓	✓	✓	✓	✓ ***	✓	✓	✓ **	✓	✓	✓	✓
Voice	✓	✓	✓	✓					✓ *			
Documentation	✓	✓										

*) not in Windows Mobile 5/6, Windows Phone 7
") not in Google Android, Windows Phone 7
***) not in Windows Phone 7

Ordering licences in the shop:

1. Select desired software licence (Trainer UV or Trainer UV Pro)

2. Pay by money transfer (prepayment) or PayPal (through PayPal it's also possible to pay be credit card)

3. Activate by entering the **Run.GPS** ID (see right)

4. You'll receive your licence code and invoice via email

In our web shop (http://www.rungps.net/wiki/ShopEN/), you can also obtain useful neoprene belts which are ideal for taking your PDA or Smartphone or GPS device with you:

3. GPS Support

Getting the GPS running is usually the biggest obstacle when using programs like **Run.GPS**. Especially with older devices finding the correct settings is sometimes a challenge.

The following two types of connecting to the GPS are supported:

- Windows managed GPS („Intermediate GPS"):
    - if possible, this should be preferred
    - it is not required to find out any further parameters (like COM port)
    - only possible with Windows Mobile 5 or greater and only on some PDAs

- serial connection using a COM port
    - it is necessary to find out which COM port to use and at what baud rate
    - the settings are either found automatically using the „scan COM ports" function or you have to search the web or other sources for the correct settings
    - for external (Bluetooth) GPS devices this is the common type

3.1. GPS Configuration

The GPS configuration can be accessed from the main menu choosing Configuration > GPS Configuration.

Ideal configuration: **managed by Windows Mobile** (selecting a COM port not required)

GPS Settings

- ☑ Windows managed
- ☑ auto-connect on startup

Connect GPS

Smoothing:
- ◄ speed buffer: 15s ►
- ◄ altitude buffer: 31s ►

Advanced:

GPS Dilution (DOP)
- ◄ max accepted: 8,2 ►

Speed
- ☑ use original value from GPS

Altitude Correction
- ☐ automatic correction
- ◄ manual value: 0m ►

OK
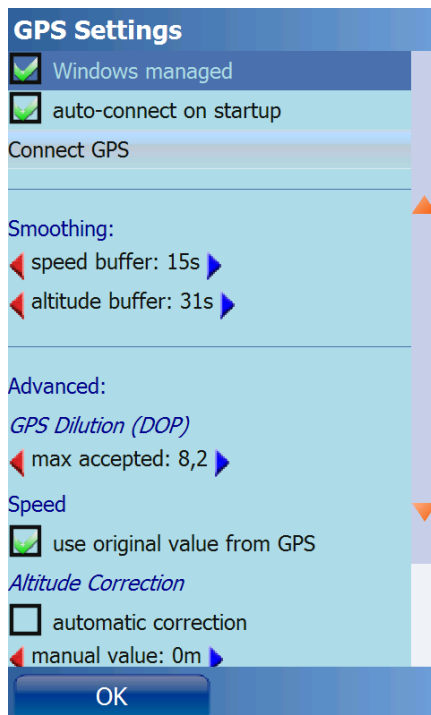
Smoothing Buffer: originally GPS devices provide very inaccurate *speed information* (especially when the speed is low). Therefore, the original speed coming from the GPS device is thrown away and instead calculated using a complex adaptive algorithm. When you move at a constant speed for a long time (e.g. Marathon) it is recommended to use a big smoothing buffer (e.g. 60 seconds). When your movement is dynamic or at high speed (e.g. Rallye) you should use a small smoothing buffer (e.g. 20 seconds). Accordingly it is possible to smooth the GPS *geographical altitude*.

Maximum accepted GPS Dilution: by this setting you can influence the quality of your track recording. If the GPS dilution of precision (DOP) value is greater then the configured maximum dilution, the GPS position data is skipped. The smaller the DOP value, the better the GPS signal.[1]

Speed – use original values from GPS: if activated, the (smoothed) speed values from the GPS device are used. If

---

1 also see http://en.wikipedia.org/wiki/Dilution_of_precision_(GPS)

not activated, Run.GPS will compute speed and pace. This can make sense especially for older devices.

Altitude correction is only required for a few devices which output altitudes with a constant value added or subtracted. Try automatic correction first if this is the case. Errors in altitude measurement can be normal since GPS based altitude measurement is relatively inaccurate.

GPSID fix: required only for the Mio A701; must not be activated on other devices – this leads to the GPS coordinates being totally wrong (multiplied with about 0.01)

Configuration using serial (COM) port:
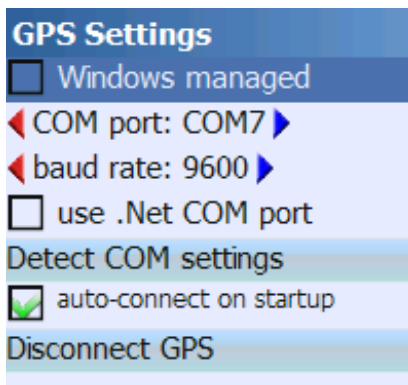
COM port and baud rate can be entered manually or detected automatically. Automatic detection does not work in all cases – if it doesn't, you should search the web or other sources for the correct settings.
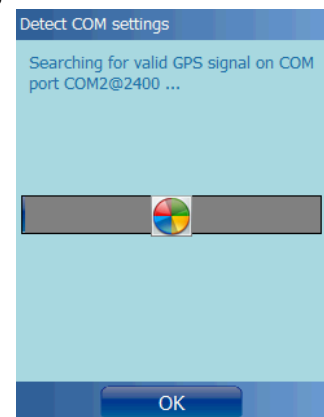
Use .Net COM port: this setting makes sense only on very few devices (e.g. "HP Ipaq 2200"). Please use only if required. On incompatible devices this can "freeze" your device (e.g. "MDA Compact III").

Hint: if your device is "frozen" because you checked the "use .Net COM port" function, and you cannot start **Run.GPS** any more, delete the file "My Documents/Run.GPS/configuration.xml" to reset the **Run.GPS** configuration.

Some selected configurations can be found on the **Run.GPS** web site:
http://www.rungps.net/wiki/DeviceConfigurationEN

3.2.GPS Status

The GPS status window can be opened by either pressing the GPS status button in the control bar or by selecting „GPS Status" from the main menu.
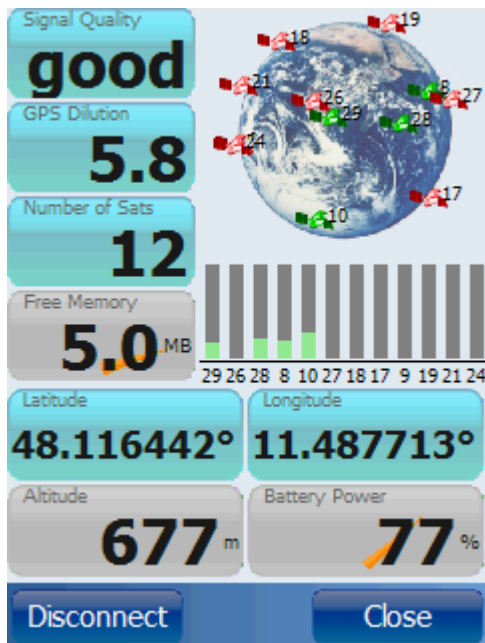
The diagram shows the current positions of the GPS satellites found. Satellites with sufficient signal strength are marked green.

All info displays can be changed by holding the buttons for about 2 seconds.

GPS Dilution: also "Dilution of Precision", "DOP"; this values expresses the suitability of the current satellite constellation for position determination; values from 1 to 6 are good, for values greater 10 the position can not be determined

The GPS device can be connected or disconnected trough this dialog. Disconnecting the GPS can be wise for instance when taking a rest (because the GPS consumes really much battery power).

3.3.GPS Setup on a Pocket PC with Built-in GPS

If you call a PDA with built-in GPS your own, getting it connected to **Run.GPS** should be relatively easy. Sometimes, though, the parameters have to be found by exhausting investigation.

1. First try to connect your GPS using „Windows managed" GPS
2. If that does not work, try to scan the COM ports („Detect COM Settings")
3. If that also fails, try searching the web for the correct settings

Hint: From Windows Mobile 5, there is a dialog „GPS" in the system settings. Among other things the GPS hardware port can be found there.

In most cases the hardware COM port has to be used.
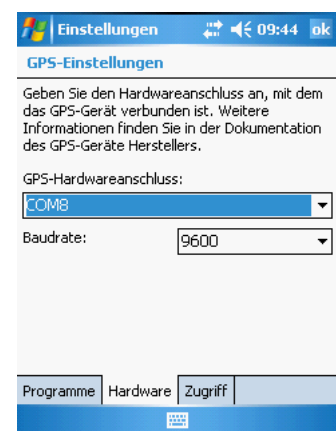
3.4.GPS Setup on a Pocket PC with External GPS Device

This works approximately in the same fashion as when connecting to a built-in GPS – with the difference that the Bluetooth connection has to be established first.
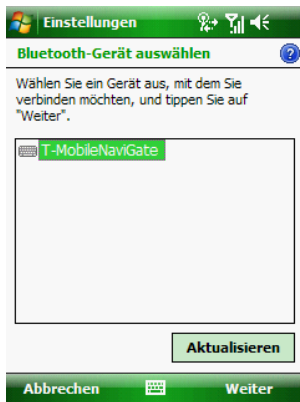
First of all switch on Bluetooth on your Pocket PC. Then search for Bluetooth devices.
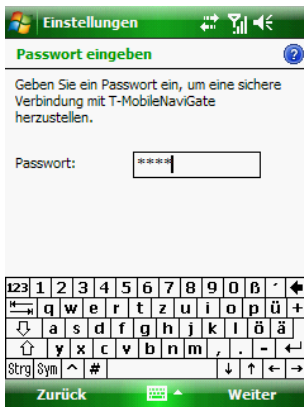
Connect to the Bluetooth GPS device and enter the password/PIN code (often „1111")
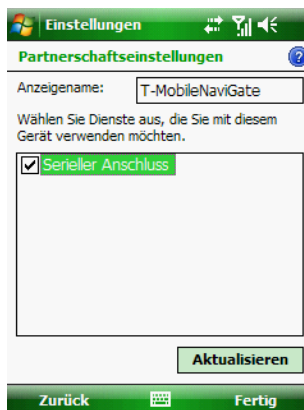
Activate the following service: „Serial Port"
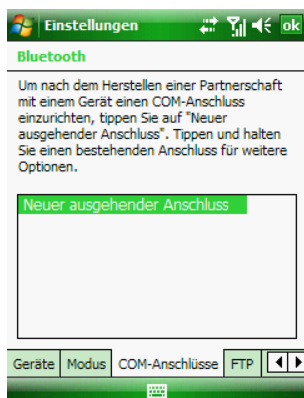
Create a new outgoing port
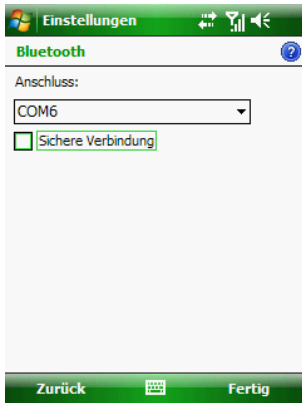
Assign a COM port number – which one does not matter
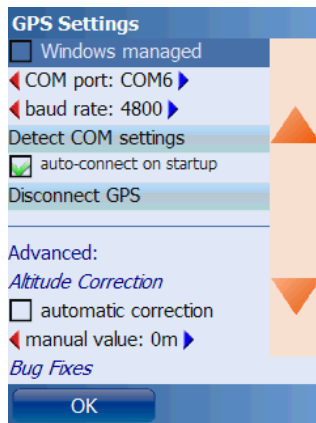
Enter the COM port number in **Run.GPS**

You may also try out different baud rate settings

3.5. GPS Setup on a Windows Smartphone with External GPS Device

For this combination a guide is quite helpful since some steps have to be performed for getting the GPS connected. The functions are pretty well hidden in Windows Mobile for Smartphones.
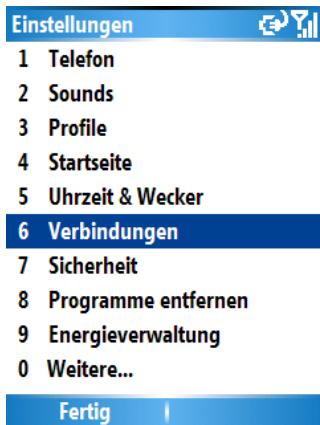
On your Smartphone, open the settings menu and then select „Connections"
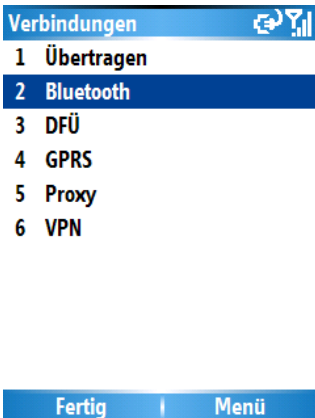
Choose „Bluetooth"
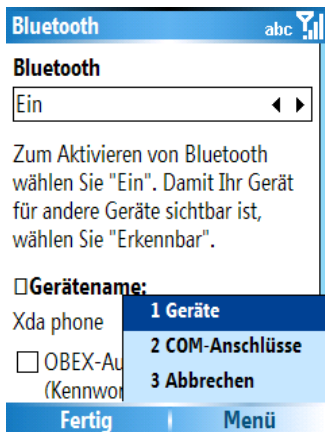
Turn on Bluetooth and search for devices within scope

Connect to the GPS device

Bluetooth-Geräte

T-MobileNaviGate
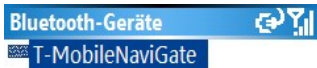
After entering a PIN code the GPS device appears in the list of connected devices

Fertig | Menü

Bluetooth abc

Bluetooth

Ein ◄ ►

Zum Aktivieren von Bluetooth wählen Sie "Ein". Damit Ihr Gerät für andere Geräte sichtbar ist, wählen Sie "Erkennbar".

Gerätename:

Xda phone
| 1 Geräte |
| 2 COM-Anschlüsse |
| 3 Abbrechen |

OBEX-Au
(Kennwor

Fertig | Menü
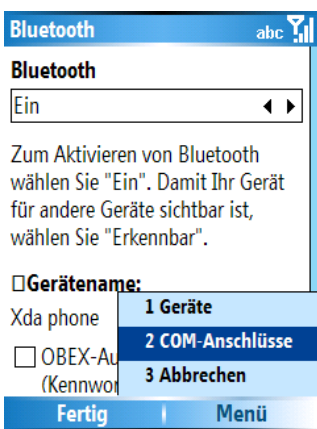
Select „COM Ports" in the menu

COM-Anschlüsse

T-MobileNaviGate (COM7)

Create a new outgoing port

| 1 Neuer ausgehender Port |
| 2 Neuer eingehender Port |
| 3 Bearbeiten |
| 4 Löschen |

Fertig | Menü

COM-Anschlüsse

COM7 ◄ ►

☐ Sichere Verbindung
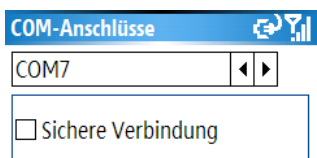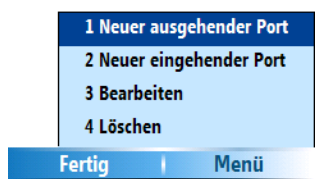
Assign any COM port number

Fertig | Abbrechen
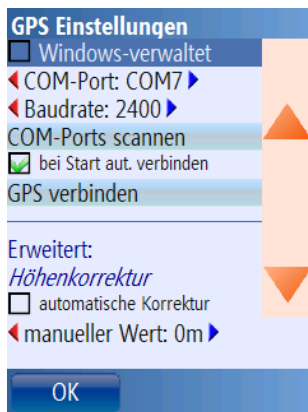
Select the COM port in **Run.GPS**

You may also try out different baud rate settings

3.6. Testing a Bluetooth Connection with „SerialTester"

Advanced users may use the „SerialTester" program to check a COM port and to verify the codes sent on this port. To be able to use **Run.GPS** on a Pocket PC or Smartphone, the connected Bluetooth GPS device must send so called „NMEA" codes. This is sort of the language used by the GPS to communicate with your PDA. NMEA codes start with a „$" sign and look like this:

$GPRMC,002002.931,V,0000.0000,N,00000.0000,E,,,270102,,*19

$GPRMC,002003.931,V,0000.0000,N,00000.0000,E,,,270102,,*18

SerialTester is a very simple program that scans all the data coming in on a COM port. It can be used for testing serial port communication but not for testing Windows managed GPS. It' runs on both Pocket PCs and Smartphones.

Installation

1. Download the program at the following address:
   http://www.rungps.net/Wiki.jsp?page=SerialTestToolEN
2. Copy the file „Run.GPS.SerialTester.exe" to your mobile device (don't run it on your PC)
3. On your mobile device, start the „File Explorer" (that comes with Windows Mobile), select the correct folder and click the „Run.GPS.SerialTester.exe" file to start the program

SerialTester on a Smartphone:
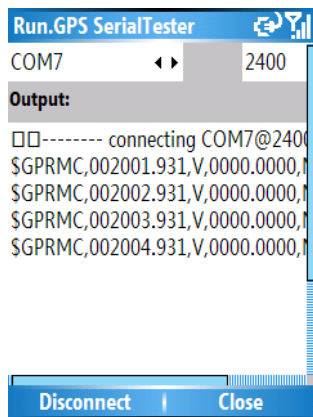
All recorded codes are stored for verification in file „rungpstest.log" on the top file system level on your device.

4. Functions and Features

4.1. Control Bar

Central control element of **Run.GPS** is the **control bar**.

It contains the following elements from left to right:

1. Main screen choice

2. Starting/stopping a training session

3. Show and change currently active sport

4. Keep backlight turned on

5. Lock/unlock application

6. Heart rate monitor status

7. GPS signal quality

8. Battery level

9. Main menu

4.2.Main Menu

Through the main menu almost all **Run.GPS** functions can be controlled.

Training Log & Plan: lists all recorded and planned trainings ordered by date and also contains training planning and management.

Training Settings: Starting a new training, selecting a sport, editing title and description of a training

Navigation: here the navigation target for the Navigator is being defined

Voice Output: set the voice output frequency and define which announcements shall be made through voice output

Online Services: access online services such as Live Tracking and searching for friends or routes

Placemarks: list, edit and manage placemarks

GPS Status: show satellite positions, GPS signal quality and related data

Select Screen: choose one of the six main screens for display

Reports/Analysis: create training reports
(Run.GPS Trainer UV Pro only)

Configuration: GPS configuration, general settings, map settings, diagram settings
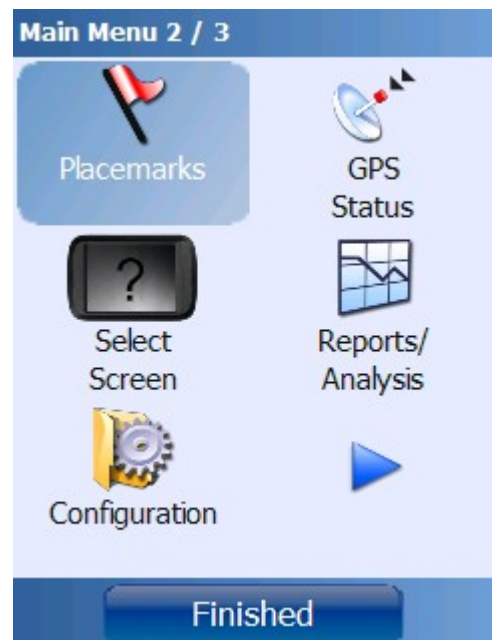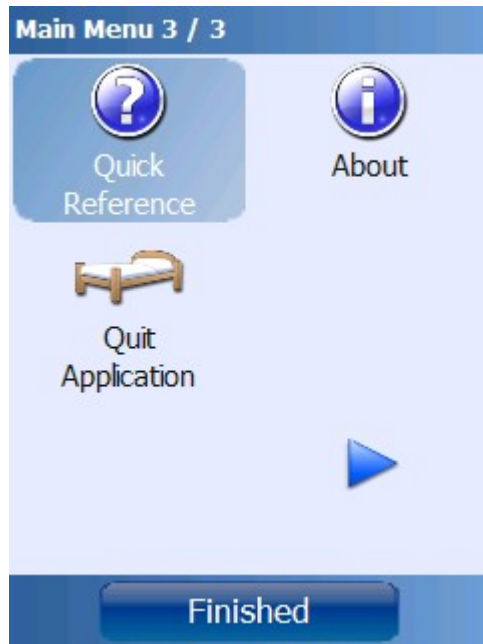
Quick Reference: shows a document with all keyboard shortcuts and configurable display values

About: shows the installed program version and holds function for entering licence keys

Quit Application: shut down the program

4.3.Main Screens

You can choose one of the six main screens depending on what you intend to do with **Run.GPS** at the moment. They're switched using this menu:

4.3.1.Recorder

This screen is intended for use during a training or competition. It contains extra big buttons which can be operated with a finger.

Start/Stop: Start or stop training recording

Split: start a new lap or track section

The displays can be changed by holding the display buttons for about two seconds.

4.3.2.Navigator
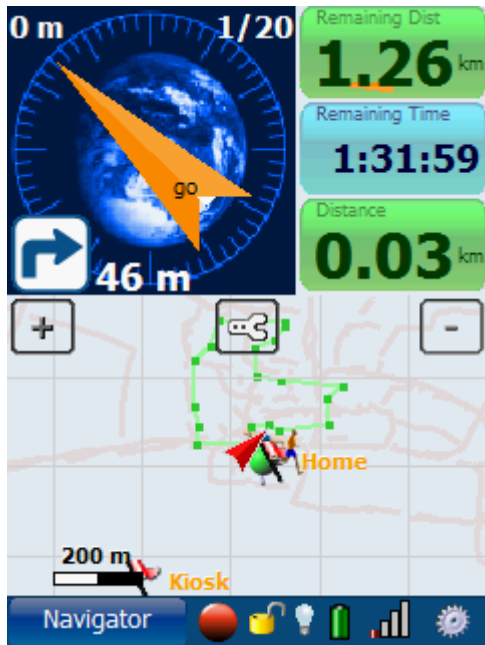
The Navigator is used – as the name suggests – for navigation.

The orange needle shows the navigation direction. (always relative to your own direction of movement).

The white needle is the compass needle (also relative to the direction of movement).

In the top left corner the distance from the navigation route is displayed.

In the top right corner of the compass display the current position on the route is displayed (e.g. track point 1 of 20).

Below the compass navigation instructions can be shown if required, for instance „turn right after 46 m".

The displays can be changed by holding the display buttons for about two seconds.

The map can be zoomed by moving the zoom slider and configured by pressing

The navigation route is depicted in green color.

4.3.3.Map
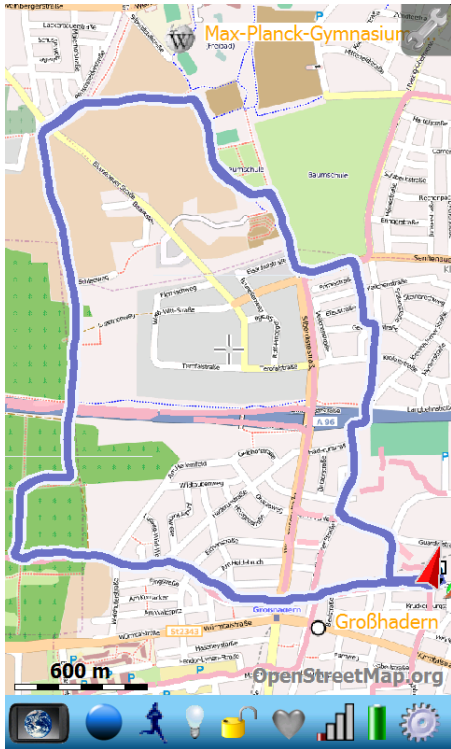
The map screen shows the map with navigation information and placemarks.

The covered track part is depicted in blue color and the track ahead in green color. Placemark are illustrated with an individual symbol showing the type of placemark. Lap numbers are displayed in a white block with black borders.

In the middle of the map you can see the cursor's cross lines. You can use the cursor position as navigation target or to create placemarks.

By double-clicking on an item (map position, track position, placemark, friend or Wikipedia article) you get a description and a list of possible actions for that item.

By pressing the configuration button you will get to the map configuration menu:
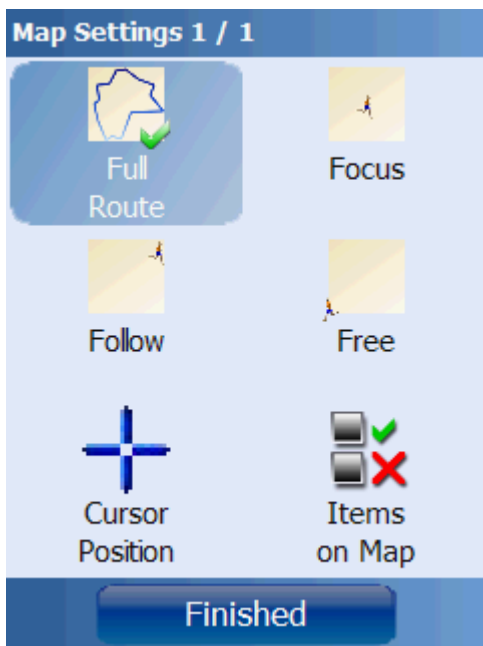
Full Route: show full covered track plus full navigation route (if loaded)

Focus: always focus on current GPS position

Follow: automatically move map so that the current GPS position is never outside the map

Free: freely zoom and move the map

Cursor Position: opens a menu showing the current cursor position. If the cursor is above the track or a placemark, corresponding information will be displayed. The cursor position can be used as navigation target or to create a new placemark.

By pressing the button „**Items on Map**" you'll open another sub-menu allowing you to define exactly which elements you want to see on the map..

4.3.4. Laps

This screen shows the training data for a defined lap or track segment. Laps are created by pressing the „Split" button on the Recorder screen. They can also be initiated using the „Automatic Lap Detection" feature.

You can browse the laps using the orange arrows.

All displays can be changed by holding a button for about 2 seconds.

4.3.5. Diagram
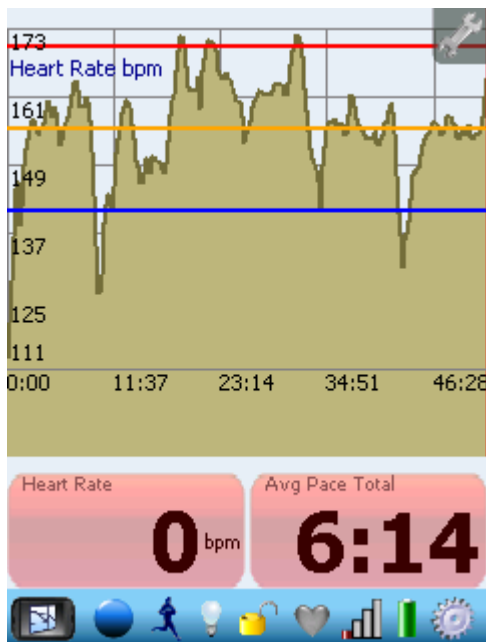
On the diagram screen you'll find the diagram plus two configurable info displays.

The values for both the x-axis and the y-axis can be defined separately.

X-axis: time or covered distance

Y-axis: speed, pace, heart rate, cadence, altitude or DOP

Orange line: average value

Red line: maximum value (interval training)

Blue line: minimum value (interval training)

By pressing the ![wrench] button the diagram can be configured:
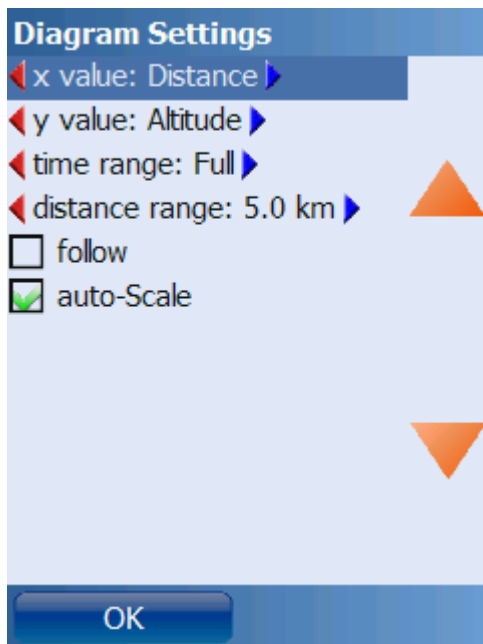
x value: value shown on x-axis

y value: value shown on y-axis

time range: range of time shown on x-axis

distance range: range of distance shown on x-axis

follow: if activated, the diagram always shows the latest values and is scrolled on demand

auto-scale: always scale diagram so the range of values on the y-axis is as big as possible

4.3.6.Additional Screens

Besides the already mentioned ones there is one additional screen in „**Run.GPS Trainer UV**" and five additional screens in „**Run.GPS Trainer UV Pro**" . Just like the screens in the previous chapters, the additional screens are also fully configurable.

Overview: the most important values and diagrams

Training Data: summarizes many training parameters on one screen

Power: current power data, calorie consumption

*Navigator Plus:
navigation screen
with added displays*
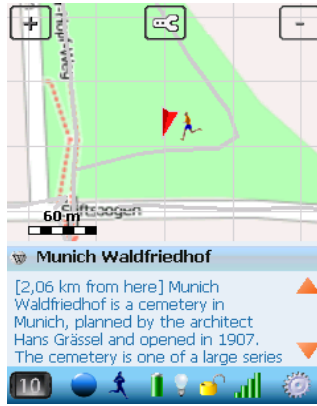
*Wikipedia-Guide:
always shows the
Wikipedia article
located closest to
you*

4.4.Configuring Screens and Displays

On most of the main screens there are configurable info displays. You can change the displays by pressing and holding them for about 2 seconds. The following dialog will open up:
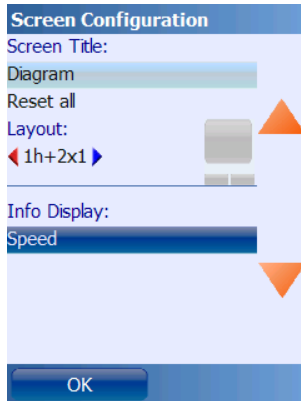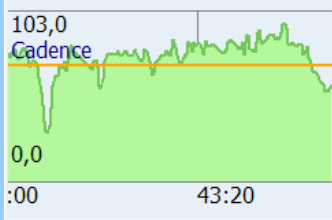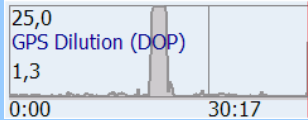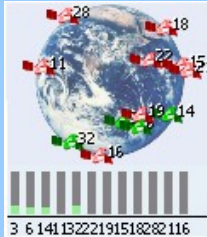
To change the info display, press the button showing the current info display. In the following dialog you can change the display:
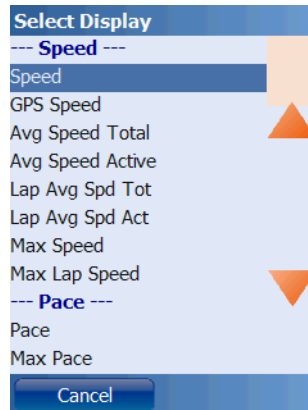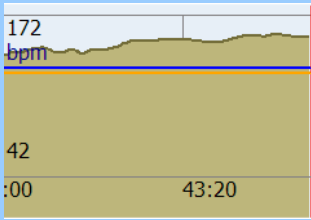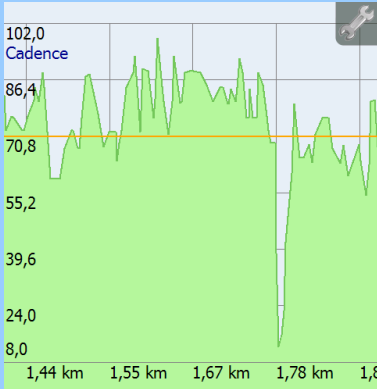
4.4.1.List of Available Displays

Category	Name	Unit	Description
Altitude	Altitude	m or ft	Altitude above sea level
Altitude	Barometric Altitude	m or ft	Shows barometric altitude if a proper device is present (e.g. "FRWD B100")
Altitude	Lap Ascent	m or ft	Accumulated ascent (difference in altitude gained) in selected lap
Altitude	Lap Descent	m or ft	Accumulated descent (difference in altitude lost) in selected lap
Altitude	Lap Max Altitude	m or ft	Max altitude above sea level gained in selected lap
Altitude	Lap Min Altitude	m or ft	Min altitude above sea level in selected lap
Altitude	Max Altitude	m or ft	Max altitude above sea level
Altitude	Min Altitude	m or ft	Min altitude above sea level during training
Altitude	Altitude Gain	m or ft	Difference between current altitude and initial altitude
Altitude	Mini Altitude Diagram (follow)	-	Mini altitude diagram showing the last 1000 meters (this diagram is not configurable)
Altitude	Mini Altitude	-	Mini altitude diagram showing the full training

	Diagram (full)		session (this diagram is not configurable)
Altitude	Total Ascent	m or ft	Accumulated ascent (difference in altitude gained)
Altitude	Total Descent	m or ft	Accumulated descent (difference in altitude lost)
Altitude	Slope	%	Current slope in percent, calculated over the last 100 – 700 training meters (Note: because of the imprecise GPS altitude measurement this value may not be very useful)
Altitude	Max Slope	%	Maximum slope in training session
Altitude	Min Slope	%	Minimum slope in training session (negative value means descent)
Altitude	Ascent Rate	m/min or ft/min	Current ascent rate, calculated over the last 1 – 6 minutes (Note: because of the imprecise GPS altitude measurement this value may not be very useful)
Altitude	Min Ascent Rate	m/min or ft/min	Minimum ascent rate in training
Altitude	Max Ascent Rate	m/min or ft/min	Maximum ascent rate in training (negative value means descent)
Cadence	Avg Cadence	-	Average cadence
Cadence	Avg Cadence Lap	-	Average cadence for selected lap
Cadence	Cadence	-	Current cadence (if cadence sensor is connected, e.g. "Zephyr HxM")
Cadence	Max Cadence	-	Maximum cadence
Cadence	Max Cadence Lap	-	Maximum cadence for selected lap
Cadence	Min Cadence	-	Minimum cadence
Cadence	Min Cadence Lap	-	Minimum cadence for selected lap
Cadence	Mini Cadence Diagram (follow)	-	Mini cadence diagram showing the last 5 minutes of the training (not configurable)
Cadence	Mini Cadence Diagram (full)	-	Mini cadence diagram showing the entire training (not configurable)
Calories	Avg Cal Burning	kcal/h	Average calorie burning
Calories	Avg Power	W	Average Power
Calories	Calorie Burning	kcal/h	Current calorie burning

Calories	Calories	kcal	Burned calories in this training session
Calories	Power	W	Current power
Distance	Dist fr Competitor	m	When you run against a "virtual training partner", this display shows the distance to your competitor (negative: you're behind, positive: you're ahead)
Distance	Dist from Route	m or ft	Current distance from the navigation route
Distance	Dist to Trk Point	m or ft	Distance to the next track point defined by the navigation route
Distance	Distance	km or mi	Distance
Distance	Lap Distance	km or mi	Distance in selected lap
Distance	ODO Distance	km or mi	Total mileage using **Run.GPS** (also when training session is not started)
Distance	Remaining Dist	km or mi	Remaining distance to the navigation goal
GPS	GPS Dilution (DOP)	-	DOP, Dilution of Precision, see http://en.wikipedia.org/wiki/Dilution_of_precision_(GPS)
GPS	Latitude	°	Latitude of current position
GPS	Longitude	°	Longitude of current position
GPS	Mini DOP Diagram (follow)	-	Mini DOP (dilution of precision) diagram showing the last 5 minutes of the training (not configurable)
GPS	Mini DOP Diagram (full)	-	Mini DOP (dilution of precision) diagram showing the entire training (not configurable)
GPS	Number of Sats	-	Number of satellites seen by the GPS device
GPS	Satellites	-	Chart showing all visible GPS satellites and signal strength for each
GPS	Signal Quality	-	Quality of the GPS signal

GPS	Smoothing Buffer	s	Current size of the smoothing buffer
Heart Rate	Avg Heart Efficiency	m/b	Average distance covered per heart beat
Heart Rate	Avg Heart Rate	bpm	Average heart rate
Heart Rate	Heart Efficiency	m/b	Measures the distance you cover with every heart beat (usually about 1 m/heart beat for a trained person when running)
Heart Rate	Heart Rate	bpm	Current heart rate (only if device is connected)
Heart Rate	Lap Avg Heart Rate	bpm	Average heart rate in selected lap
Heart Rate	Lap Max Heart Rate	bpm	Maximum heart rate in selected lap
Heart Rate	Lap Min Heart Rate	bpm	Minimum heart rate in selected lap
Heart Rate	Max Heart Rate	bpm	Maximum heart rate
Heart Rate	Min Heart Rate	bpm	Minimum heart rate
Heart Rate	Mini Heart Rate Diagram (follow)	-	Mini heart rate diagram showing the last 5 minutes of the training (not configurable)
Heart Rate	Mini Heart Rate Diagram (full)	-	Mini heart rate diagram showing the entire training (not configurable)
Heart Rate	Number of Heart Beats	-	Total number of heart beats in training
Interval Training	Interval Distance	km or mi	Total distance of current interval (only distance mode)
Interval Training	Interval Duration	-	Total duration of the current interval (only time mode)
Interval Training	Interval Heart Rate	bpm	Minimum and maximum heart rate for the current interval
Interval Training	Interval Number	-	Number of the current interval
Interval Training	Interval Remaining Dist	km or mi	Remaining distance in current interval (only distance mode)
Interval Training	Interval Remaining Time	-	Remaining training time in the current interval (only time mode)
Interval Training	Interval Speed	km/h or mi/h	Minimum and maximum speed for the current interval
Map	Map	-	Fully configurable and moveable/zoomable map component **(only one allowed per screen, minimum size 100 pixels)**

Map	Mini-Map (~150m)	-	Mini-Map with about 150 meters diameter (focusses on the current position, shows only important map elements)
Map	Mini-Map (~2km)	-	Mini-Map with about 2 kilometers diameter (focusses on the current position, shows only important map elements)
Map	Mini-Map (~500m)	-	Mini-Map with about 500 meters diameter (focusses on the current position, shows only important map elements)
Map	Mini-Map (~5km)	-	Mini-Map with about 5 kilometers diameter (focusses on the current position, shows only important map elements)
Map	Mini-Map (full)	-	Mini-Map showing the full training session (focusses on the current position, shows only important map elements)
Miscellaneous	-empty-		Shows an empty gray field
Miscellaneous	Battery Power	%	Battery level in percent
Miscellaneous	Diagram	-	Fully configurable diagram **(only one allowed per screen, minimum size 100 pixels)**
Miscellaneous	Free Memory	MB	Size of the free part of the main memory
Miscellaneous	Heading	-	Heading arrow and navigation instructions

38

Miscellaneous	Heart Rate Mon Batt Power	%	Battery level of connected heart rate monitor (requires that the HRM supports querying battery status, e.g. "Zephyr HRM")
Miscellaneous	Lap Select Control	-	Control element allowing to select a specific lap **(only one allowed per screen)**
Miscellaneous	Nearest Wikipedia article	-	Title and abstract of the nearest Wikipedia article. Requires that online Wikipedia access is enabled (Configuration > Map Settings > Items on Map > Wikipedia Articles > automatic download).
Miscellaneous	MortPlayer	-	This is not a music player but a remote control for the "MortPlayer". MortPlayer is great freeware music player that can be downloaded from www.sto-helit.de.
Miscellaneous	Training Start/Stop	-	Training start/stop/split control element (normally shown on the top of the Recorder screen) **(only one allowed per screen)**
Pace	Avg Pace Active	-	Average time per kilometer or mile (only active time taken into account)
Pace	Avg Pace Total	-	Average time per kilometer or mile (total time taken into account)

Pace	Lap Avg Pace Active	-	Time per kilometer or mile for selected lap (only active time taken into account)
Pace	Lap Avg Pace Total	-	Time per kilometer or mile for selected lap (total time taken into account)
Pace	Lap Max Pace	-	Min time per kilometer or mile (i.e. max. pace) for selected lap
Pace	Max Pace	-	Min time per kilometer or mile (i.e. max pace)
Pace	Mini-Pace-Diagram (follow)	-	Mini speed diagram showing the last 5 minutes (this diagram is not configurable)
Pace	Mini-Pace-Diagram (full)	-	Mini speed diagram showing the full training session (this diagram is not configurable)
Pace	Pace	-	Time per kilometer or mile
Speed	Avg Speed Active	km/h or mi/h	Average speed (only active time taken into account)
Speed	Avg Speed Total	km/h or mi/h	Average speed (total time taken into account)
Speed	GPS Speed	km/h or mi/h	Information about speed coming directly from the GPS device
Speed	Lap Avg Speed Active	km/h or mi/h	Average speed in selected lap (only active time taken into account)
Speed	Lap Avg Speed Total	km/h or mi/h	Average speed in selected lap (totale time taken into account)
Speed	Lap Max Speed	km/h or mi/h	Max speed in selected lap
Speed	Max Speed	km/h or mi/h	Max speed
Speed	Mini Speed Diagram (follow)	-	Mini speed diagram showing the last 5 minutes (this diagram is not configurable)
Speed	Mini Speed Diagram (full)	-	Mini speed diagram showing the full training session (this diagram is not configurable)
Speed	Speed	km/h or mi/h	Current smoothed speed
Temperature	Avg Temperature	°C	Average temperature
Temperature	Max Temperature	°C	Maximum temperature
Temperature	Min Temperature	°C	Minimum temperature
Temperature	Mini Temperature Diagram (follow)	-	Mini temperature diagram showing the last 5 minutes (not configurable)
Temperature	Mini Temperature Diagram (full)	-	Mini temperature diagram showing the entire training (not configurable)
Temperature	Temperature	°C	Current temperature (requires temperature sensor, e.g. "FRWD B100")
Time	Arrival Time	-	Estimated time of arrival
Time	Estimated Duration	-	Estimated total duration of the training

			session (only known if a route is loaded and the athlete has already started the training)
Time	Lap Active Time	-	Accumulated active time in selected lap
Time	Lap Time	-	Training time in selected lap
Time	Remaining Time	-	Remaining (estimated) time before the navigation goal is reached
Time	Time of Day	-	Time of day
Time	Training Time	-	Duration of training session until now
			Training Time **00:45:26**
Time	Virtual Lead	-	The lead time you have over your virtual training partner. A negative value means you're behind. Requires that a route with training times is loaded.
Time	Active Time	-	Training time minus pauses

4.5.Geo-Coding Photos, Audio Recordings and Videos

Many PDAs and even more Smartphones come with a built-in camera. Though the quality of the photos taken is often far from perfect, it is enough for snapshots. On devices that contain both camera and GPS, using the GPS to geo-code photos is obvious. Besides geo-coding photos you can also geo-code audio recordings and videos.

„Geo-coding" photos means: storing the geographic position (latitude + longitude) for a photo.

With **Run.GPS**, geo-coding is done through the timestamp of the photos. For each point in time of a **Run.GPS** training session, the geographic position is well-known. Therefore it is easy to assign the positions to photos.

For each photo, the exact point in time, the geographic position and altitude can be stored. On the **Run.GPS** community server „GPS-Sport.net" it looks like this:
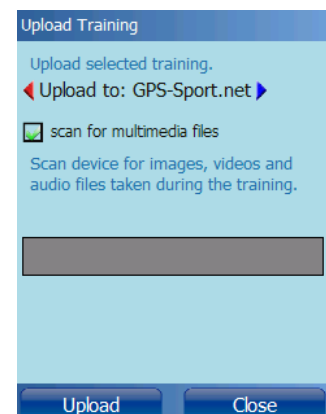

Supported file types:

- Images: JPEG, PNG
- Video: MP4, MOV, MPEG, AVI, 3GP
- Audio: WAV, MP3

4.5.1.Training Upload: Automatic Multimedia File Search

When uploading training recordings to the GPS-Sport.net or GPSies.com portals, photos, videos and audio files can be

automatically added to the upload. To activate the function, just click the „scan for multimedia files" check box.

Mode of operation: **Run.GPS** searches your entire device for image files for which the creation date falls into the training time period. All such files are added to the upload.

4.5.2.Manual Assignment of Images

If images are coming from an external camera or have been modified, they can be manually added to the training by putting them into the appropriate training folder:

```
My Documents/Run.GPS/users/uv-user/<training month>/<training folder>
```

e.g.

```
My Documents/Run.GPS/users/uv-user/trainings200709/070916_120028_540847
```

The appropriate training folder can be easily recognized by checking the date and time (folder name: <date>_<time>_<sequence number>).

All images must be in JPEG format with suffix „.jpg".

All images found in the training folder are both added to the upload when uploading and included in the detailed training reports (**Run.GPS Trainer UV Pro** only):

Image 20 'IMAGE_157.jpg'

File	IMAGE_157.jpg
Size	366 KB
Time	03.10.2007 14:11
Training Time	0.03:11:30
Distance	7,62 km
Latitude	48,129500°
Longitude	11,548592°
Altitude	521 m

Unfortunately modified or copied image files often aren't geo-coded correctly because the original creation/modification timestamp cannot be read.

4.6.Training Log & Plan

The training diary offers a list of all trainings recorded. All training data such as duration and distance can be accessed. In addition, it is possible to load and continue a previously saved training or upload it to the GPS-Sport.net portal website.

13:00 (00:22:53) 21,80km

13:32 (01:19:51) 5,72km

Mo 9, training day 5

11:31 (00:42:13) 1,33km

Mi 11, training day 7

19:21 (00:05:51) 0,36km

TRAINING WEEK 2

Do 12, training day 8

16:30 (00:02:43) 3,10km

18:00 (1:00) 50% 10,00km

19:36 (00:01:18) 0,03km

19:40 (00:15:13) 9,77km

- TODAY -

Menu   Sluiten

Planned trainings are displayed red (Pro version)
Recorded trainings are displayed blue.

If you own the Pro version of **Run.GPS** Trainer UV, you can also create training plans from the training log (see below).
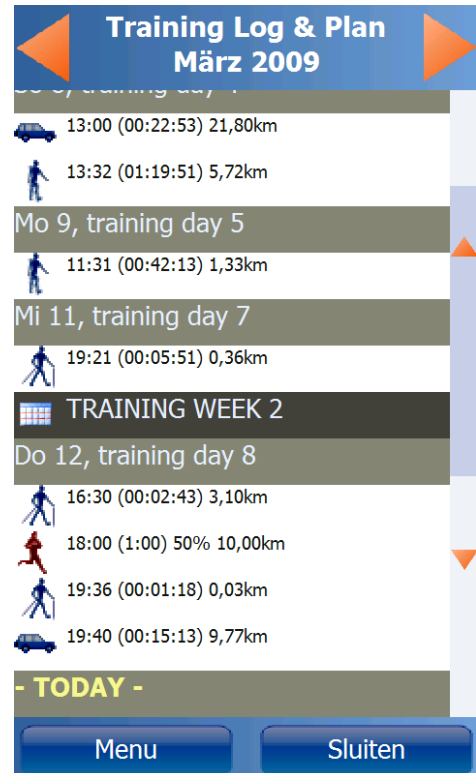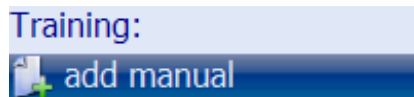
4.6.1.Adding Manual Trainings

Adding manual trainings makes it possible for you to have a complete training diary. A typical example is when you're doing triathlon training and you want to enter your swimming sessions just the same as your running and cycling sessions. Because you cannot take your PDA along when swimming, you have to add that training session afterwards to the training log.
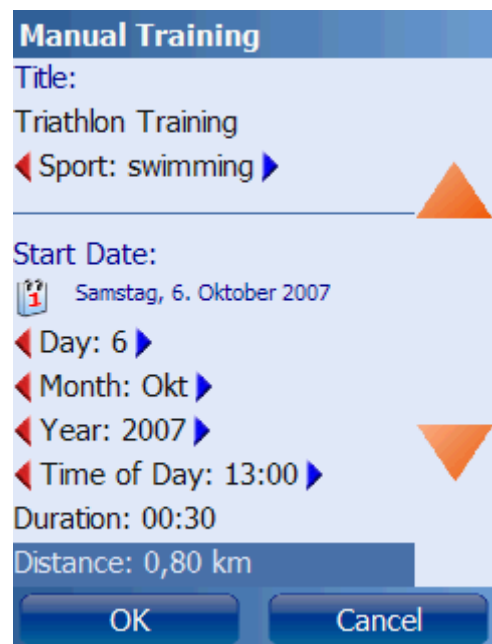
From **Run.GPS** version 2.x it is also possible to upload manual trainings to the GPS-Sport.net community portal server.

Adding a manual training:

1. Open the training log from the main menu

2. Click "Menu" button

3. Click „add manual"

Training:
add manual

4. enter your training data and press OK

Manual Training
Title:
Triathlon Training
◄ Sport: swimming ►

Start Date:
Samstag, 6. Oktober 2007
◄ Day: 6 ►
◄ Month: Okt ►
◄ Year: 2007 ►
◄ Time of Day: 13:00 ►
Duration: 00:30
Distance: 0,80 km

OK   Cancel

4.6.2. Training Planning

Use training plans to prepare for a competition or just improve your fitness. You can save and export training plans in XML format or load XML training plans.

Training plans can be moved to any position in the calendar. This means you might well re-use the training plan you created last year this year or share the training plan with friends.

In addition to that, it is possible to synchronize the currently loaded training plan with Microsoft Pocket Outlook. This means that all planned training sessions appear as appointments in Microsoft Outlook. If you connect your PDA with your PC, the appointments are also synced to Microsoft Outlook.

Creating a Training Plan

Determine when you want to start the training, what duration the training plan should have and give it a title.

From the training plan dialog, the following actions are also possible:
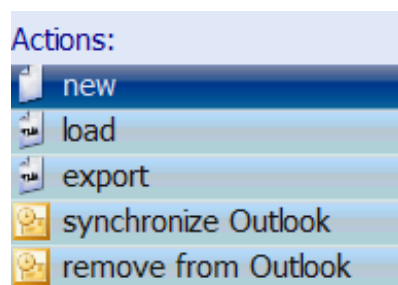

Functions: create a new training plan, load an XML training plan file, export training plan as XML, synchronize with Pocket Outlook, remove training plan entries from Pocket Outlook.

After specifying the overall training plan parameters, you should define the individual training modules and select for each if it occurs once, weekly or daily.

Training module parameters are:

- Sport
- Duration of activity
- Distance to be covered
- Average required speed
- Intensity (0 – 100 %)
- Minimum heart rate
- Maximum heart rate
- Navigation route
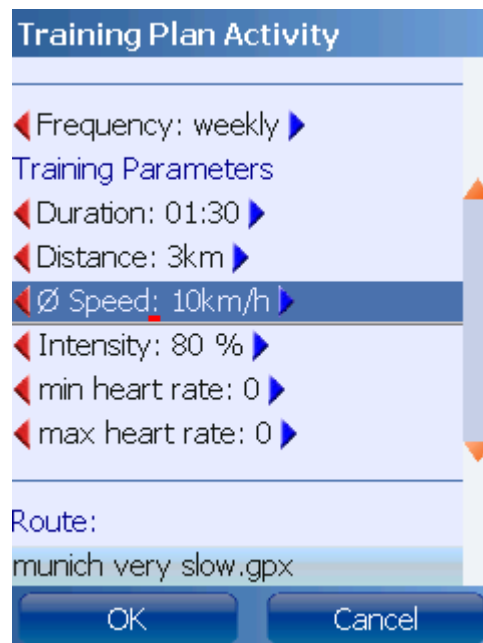
Hint: creating training plans in the GPS-Sport.net portal is much faster. You can easily synchronize your training plans from the portal to your mobile device.
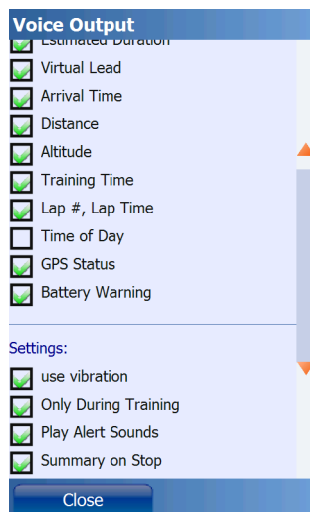
4.7.Voice Output

Besides just displaying training information, **Run.GPS** also supports *speaking* training data via voice output. This is especially helpful in training and competition situations when holding the PDA in your hand is not possible. You get training and navigation information through your earphones while at the same time listening to music.

To turn voice output on or off:

1. Click on the cog wheel symbol to open the main menu
2. Click "voice output"
3. Activate or deactivate the voice output check box
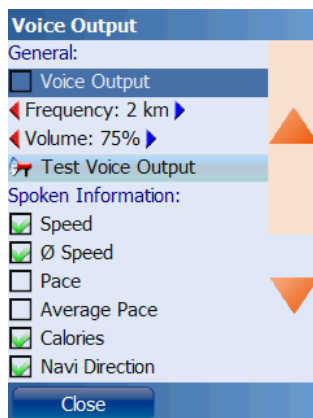
Through the "frequency" setting, you can define if training information shall be spoken in regular time intervals (30 s, 1 min, 2 min, 3 min, 5 min, 10 min, 20 min, 30 min) or after completing a certain distance (1 km, 2 km, 5 km / 1 mi, 2 mi, 5 mi).

Use vibration: device vibrates when route is left, when current interval is switched, when heart rate limits are exceeded or when the GPS is weak

Only During Training: voice output is used only while the training session is active.

Play Alert Sounds: checking this setting makes Run.GPS play a warning sound before these serious warnings: battery weak, GPS signal weak and navigation route lost.

Summary on Stop: given a spoken summary of important training data when the training is stopped.

4.7.1. Voice Announcements

Announcement	Explanation	Example
Speed	Current speed	Speed 5.5 km/h
Average Speed	Average speed in this training session	Average speed 5.0 km/h
Speed warnings	Speed warnings given when interval training is activated	Too fast, speed 20.0 km/h Too slow, speed 9.0 km/h
Interval change	Parameters of the new interval when interval training is activated	Interval 2, speed 10.0 km/h to 15.0 km/h, duration 3 minutes 30 seconds
Pace	Required time per kilometer or mile	Pace 5 minutes 3 seconds
Average Pace	Average required time per kilometer or mile	Pace 5 minutes 45 seconds
Calories	Total calories consumed during the training session (unit: kcal)	515 calories
Navi Direction	Direction to the next track point or to the target using the military clock scheme. 12 means: go straight ahead 9 means: turn left 15 means: turn right 6 means: go back The direction is always relative to your current direction of movement.	Go 14
Route Navigation	Tells you where to turn left or right – provided that you loaded a navigation route, of course. Also informs you if you depart from the route for more than 25 m / 82 ft.	After 200 m turn right After 300 ft turn sharp left, then turn slight right Distance from route: 55 m
Remaining Distance	Remaining distance before the target is reached (bee-line distance when navigating to a placemark)	Remaining distance 2.3 miles
Remaining Time	Estimated remaining time to the navigation target (only known if a navigation route is loaded and the athlete has already started the training ; inaccurate when using bee-line navigation)	Remaining time 8 minutes 33 seconds
Estimated Duration	Estimated total duration of the training	Remaining duration 3 hours 58

	session (only known if a navigation route is loaded and the athlete has already started the training ; inaccurate when using bee-line navigation)	minutes
Arrival Time	Estimated arrival time (only known if a navigation route is loaded and the athlete has already started the training ; inaccurate when using bee-line navigation)	Estimated arrival time 15:39
Virtual Lead	Lead against the virtual training partner (only announced if a route with timestamps is loaded)	Lead: 5 seconds behind Lead: 1 minute 15 seconds ahead
Distance	Covered distance	Distance 5.3 miles
Altitude	Current altitude	Altitude 3523 ft
Time	Elapsed time (stop watch)	Time 5 minutes 2 seconds
Time of Day	Current time of day	Time of day 15:23
New Lap	Current lap number and lap time for the previous (finished) lap	Lap 5 – lap time 3 minutes 22 seconds
GPS Status	GPS status and signal quality	GPS: weak signal GPS: signal okay
Battery Warning	Warns when battery is weak (< 30%) or very weak (<15 %)	Battery weak Battery very weak

4.8.Navigation

Navigation is supported by **Run.GPS** in three flavours:

- bee-line navigation to a placemark

- navigation following a given route

- online navigation – navigation route is computed und updated by the GPS-Sport.net server

It's also possible to navigate back to the training starting point (bee-line, following the same route or using online navigation).

Important notice: Run.GPS is intended for outdoor and sports navigation and may NOT be used for car navigation.

4.8.1.Bee-line Navigation

Bee-line navigation is the most simple type of navigation. It is used if there is no route, the ways and streets for an area are not known or you have no online connection to the navigation server. The navigation target can be selected from the list of placemarks or chosen by double-clicking a spot on the map.
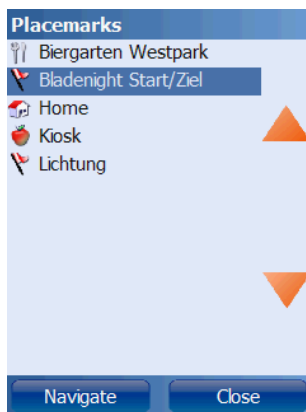
After selecting a placemark, the Navigator screen is shown:
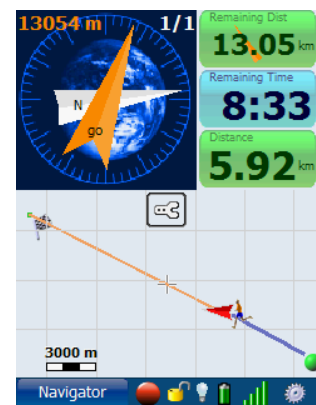
The orange arrow shows you the direction you should move (relative to the current direction of movement). On the map, the bee-line from your current position to the target is displayed as an orange line.
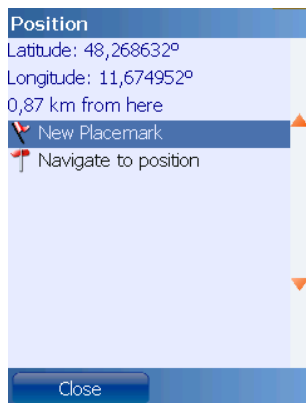
4.8.2.Online Navigation

Using online navigation is the easiest way to get to your destination. To use this feature you need an internet connection on your device (GPRS, UMTS or similar). A cell phone contract with inexpensive data services is recommended since using data services can be very expensive.

Run.GPS online navigation is able to recalculate the navigation route if the original route is left. The calculation of navigation routes is based on OpenStreetMap data (see http://www.openstreetmap.org). For the actual calculation of a navigation route the JERUSALEM project is incorporated (see http://www.gps-sport.net/routePlanner/jerusalem.jsp). Using OpenStreetMap maps has the advantage that one can in priciple navigate world-wide. At the same time it has the disadvantage that many areas are still white spots on the OpenStreetMap globe.

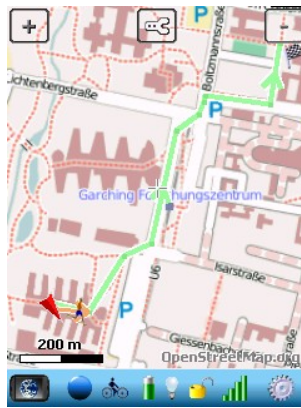*Double-click the navigation target position (alternative: select placemark)*

Select navigation function
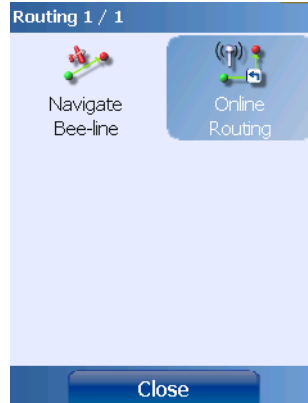
Select online routing

Choose a type of navigation, automatic recalculation

Navigation route is shown on the map

Navigation instructions shown on the Navigator screen (in addition to voice output)

Routing Modes

Mode	Type	Description
by foot	shortest	For pedestrians. Uses all types of ways up to medium level highways. One-way roads in both directions.
bike	shortest	Uses all types of ways up to medium level highways that are suitable for bikes.
mountain bike	shortest	Uses all types of bike paths including mountain paths (but also roads).
racing bike	shortest	Uses all types of ways suitable for racing bikes (there is a constraint for asphalt surface – provided that the "surface" tag is set in OpenStreetMap).
motorized	fastest	Calculates the fastest way for cars and other motorized vehicles.
motorized (shortest)	shortest	Calculates the shortest route for cars and other motorized vehicles.

Hint: The quality of routing very much depends on the quality of the OpenStreetMap data (tags) in the relevant area. We recommend using GPS-Sport.net RoutePlanner to plan longer routes.

Configuration

Route planning can be configured by choosing *Configuration > Routing Settings.*

The parameter "Lead me back to route" defines in which distance from the navigation route **Run.GPS** starts to directly lead you back to your route.

To give you a better idea here's an example:

Leading you directly back to your route

Navigating you to the next track point

The conditions for automatic rerouting can also be changed here individually for foot, bike or motorized navigation:

| Rerouting after 30 s	The navigation route must only be recalculated after 30 seconds after leaving the original route.
Min 70 m from route	Recalculate route only when you're at lease 70 meters away from the original route.
Min 200 m from last rerouting	Only after at least 200 meters (bee-line) from the last recalculation the route is recalculated again.

As you may have noticed the above settings are mainly intended to reduce the number of recalculations to avoid expensive data traffic.

4.8.3.Importing Routes from GPS-Sport.net

This is the recommended approach to create routes since it usually is the fastest.

Precondition:

You must be signed up with the GPS-Sport.net community. To get signed up you only need to enter an email address, a arbitrary user name and a password. Membership is free.
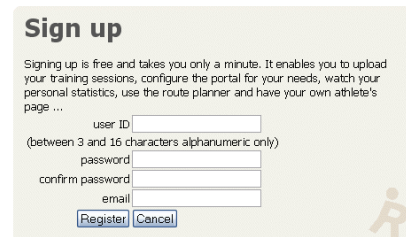
Procedure:

1. Sign in at GPS-Sport.net and press the "Route Planner" button

2. Select a target area and draw the route

3. Enter a title and click "save"

4. either export a GPX or KML file and copy it to your Pocket PC or Smartphone into the „My Documents/Run.GPS/routes" folder
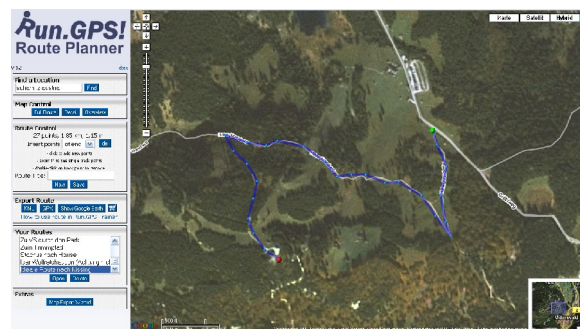
5.
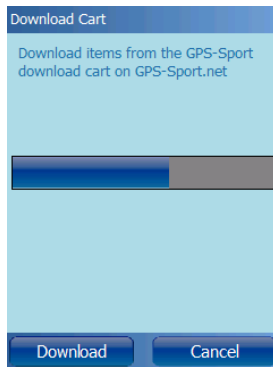
6. or - much easier - put the route to your „Download Cart Items" by pushing the 🛒 button and then select "Download Cart" from the main menu of **Run.GPS** (requires an active Internet connection on your PDA)
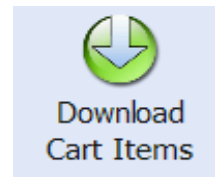
Functions in Route Planner	
Add route point	Click once to a add a route point. Route points can be added at the end, the start or on the track. Automatic routing is possible for running/walking, cycling and car driving.
Delete route point	Double-click on a route point to remove it. If you don't see the individual route points, zoom in closer.
Moving route points	Click a route point and hold the mouse button pressed while moving the mouse. If you don't see the individual route points, zoom in closer.

4.8.4. Creating Routes with Google Earth

In order to create routes (called "path" in Google Earth) you need the "Google Earth Plus" edition which is not free (the fee is about 10$/year).

Creating a route:

1. Click Add > Path in the menu in Google Earth

2. Enter a title

3. Draw the path

4. Save the path as KML (not KMZ)

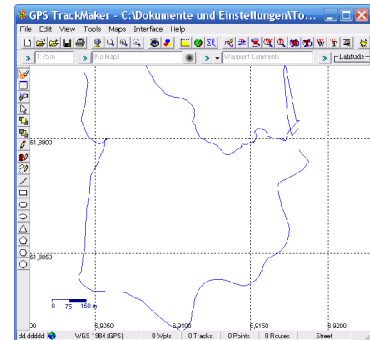5. Copy the KML file to your PDA to the „My Documents/Run.GPS/routes" folder

The navigation route can be used instantly and without restarting **Run.GPS**.
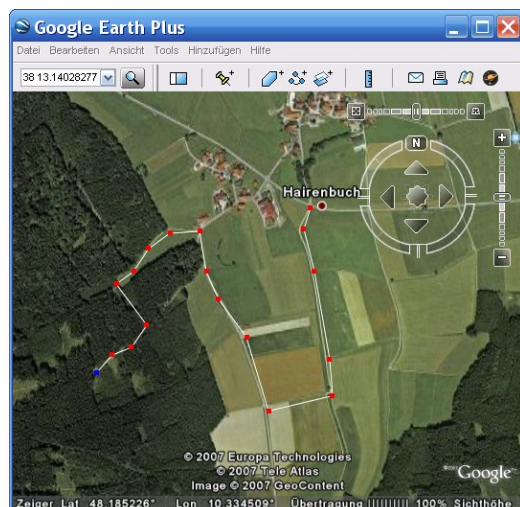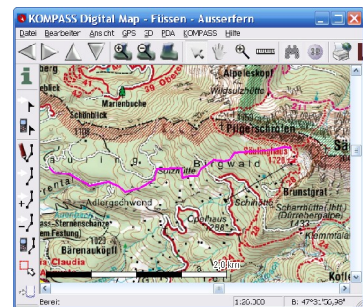
4.8.5.Importing Routes from Other Sources

Navigation routes can be imported in KML or GPX format from many programs and Internet sources. Some examples:

- MagicMaps CD-ROMs

- GPS-Trackmaker

- Kompass Digital Maps

- www.GPS-Sport.net
  Community portal for **Run.GPS** users offering about 100.000 tracks for free download

- www.GPSies.com
  Portal with many interesting routes, directly accessible from **Run.GPS Route Finder**

- www.gps-tour.info
  Extensive portal with many tracks all over the world

- www.wikiloc.com
  A Wiki for GPS tracks

- www.outdooractive.com
  Website providing high quality tours mainly for Germany

Procedure:

1. Save route/track in KML or GPX format (use GPS-Trackmaker to convert from any format)

2. Copy the route file to your PDA or Smartphone to the „/My Documents/Run.GPS/routes" folder

The route can be used in **Run.GPS** immediately and without restarting. Select Navigation > Select Route from the main menu.

Hint: if the route does not seem to get imported in **Run.GPS**, this might be because of the character encoding (the way normal and special characters are stored); Windows Mobile supports only UTF-8; if you see for instance encoding="ISO-8859-1" in the header of the route file, use GPS-Trackmaker to store the file in UTF-8 encoding.
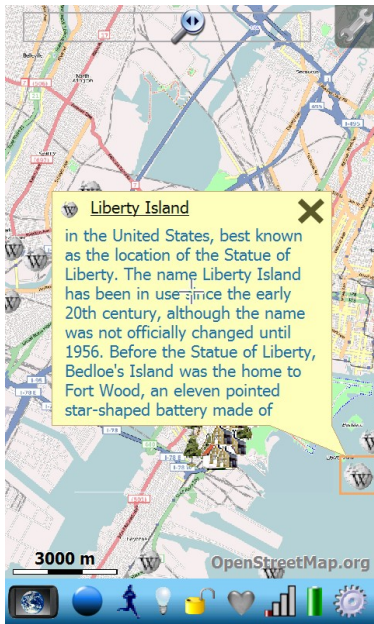
4.9.Placemarks
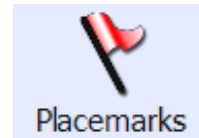
Placemarks are used to mark certain geographical positions which are of special interest – for example because this is the place where your girlfriend lives or because there is a biergarten. In other programs, placemarks might also be called waypoints or POIs (Points of Interest).

A placemark consists of the following data::

- Latitude
- Longitude
- Title
- Type (Hut, Restaurant, Clearing, …)
- Description (optional)
- Link to a related article (optional)

4.9.1.Creating Placemarks

Placemarks can be created either directly by entering coordinates (if these are known) or indirectly by moving the cursor to that spot on the map. Another possibility is to transfer a placemark from another program, for instance the GPS-Sport.net Route Planner.
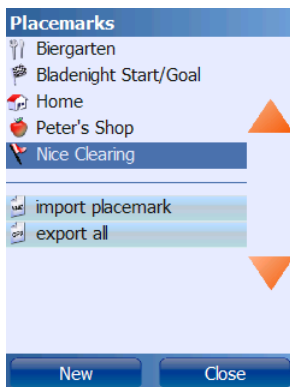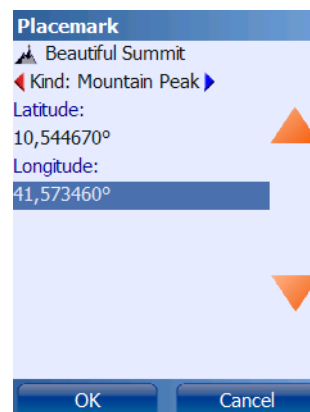
To create a new placemark, click the "New" button in the placemarks dialog.

Give it a title and enter
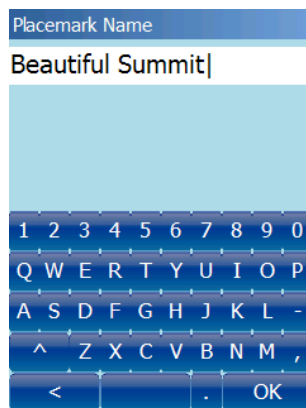
the type and the coordinates.

4.9.2.Managing Placemarks With GPS-Sport.net Route Planner

The easiest way to manage your placemarks is to use the GPS-Sport.net Route Planner.
You can download placemarks from Route Planner through the Download Cart. You can also
upload placemarks created in **Run.GPS** to the GPS-Sport.net portal.

How to create placemarks:

1. Open GPS-Sport.net and sign in
2. Click the "Route Planner" button
3. Switch to placemarks insertion mode
4. Click on the map to insert a new placemark
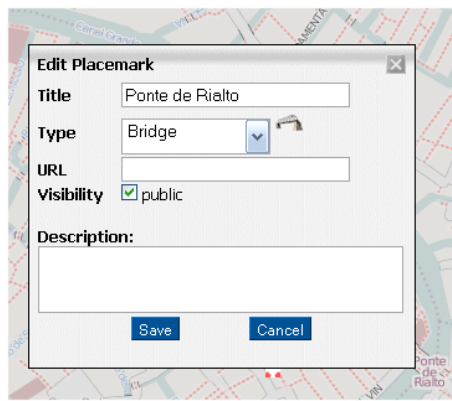

Copying placemarks to **Run.GPS**:

1. Click on the placemark
2. Put it to the Download Cart

3. In **Run.GPS**, select Main Menu > Online Services > Download Cart

4.9.3.Downloading Geonames Placemarks from the Internet

Thanks to the great service www.geonames.org, it's possible to access a world-wide database of placemarks. Some of the placemark types stored there: geo-coded Wikipedia articles, cities, mountains, hotels, huts, castles, hospitals, ...
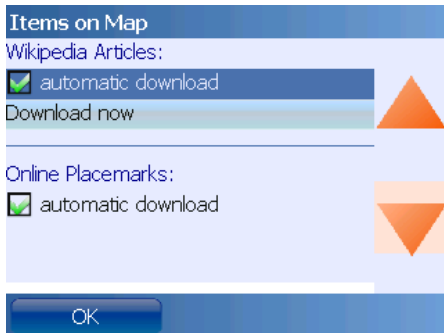
Automatic placemark download can be activated separately for Wikipedia articles and other placemark types (Map Settings > Items on Map)

Display of Wikipedia articles, cities and other placemarks on the map

At higher zoom levels the names of placemarks are also displayed (here with activated Cycle Map)

Double-clicking a placemark opens a context menu

The geonames.org service is licensed under Creative Commons Attribution 3.0 licence, see http://creativecommons.org/licenses/by/3.0/.

4.9.4.Importing and Exporting Placemarks

This function is only available in **Run.GPS Trainer UV Pro**.

Placemarks can be exported in GPX or KML file format. Imports are possible form GPX and KMZ.

Procedure for importing from other programs:

1. Create a placemark (e.g. in Google Earth)

2. Save it as GPX of KMZ and copy the file to your PDA to the „My Documents/Run.GPS/placemarks/waypoints" folder

3. In **Run.GPS**, select "Import Placemark" in the placemarks dialog

4.10.Virtual Training Partner

The virtual training partner makes it possible for athletes to compete against themselves or other athletes – without the presence of the athlete you compete against. For each phase of the training you are informed how many seconds you're ahead or behind. This value is calculated on basis of the previously recorded training session, not on basis of average speed or other parameters.


The determined lead over the virtual training partner is both displayed on the screen and spoken via voice output. A positive value means you're ahead and a negative value that you're behind.
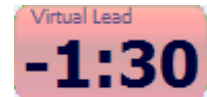
To activate the display, choose one of the main screens and press a button for about two seconds. Select "Virtual Lead" as display value.

Voice output can be activated by selecting Main Menu > Voice Output:
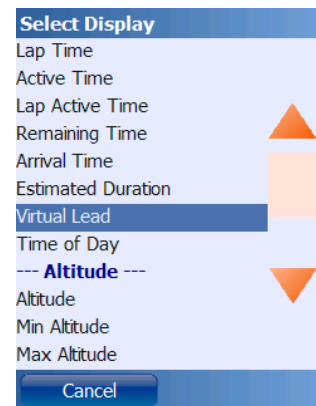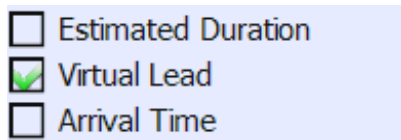
You can follow the training recording of your virtual training partner both in original and reverse direction.
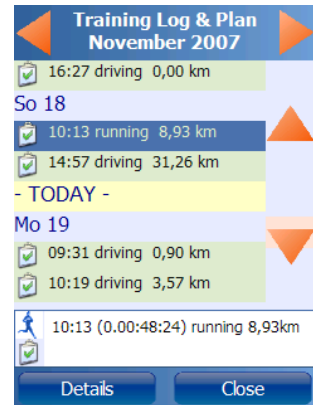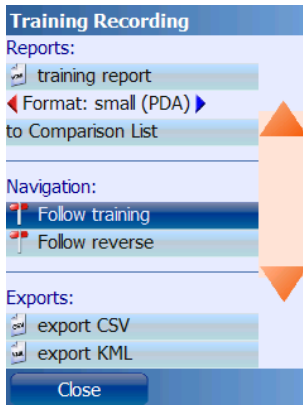
Virtual training partner on the map:

4.10.1. Virtual Training Against Yourself

Virtual training against yourself can be activated quickly:

1. Choose "Training Log & Plan" from the main menu

2. Choose a completed training session and press the "Details" button

3. Select "Follow training" or "Follow reverse"

4. Proceed with the training as normal

### 4.10.2. Virtual Training Against Another Athlete

Training recordings by other athletes can be downloaded from GPS-Sport.net portal. The only requirement for competing against one of the GPS-Sport.net users is that you have the GPX track data including timestamps for each track point. Using the KML format is not possible since timestamps cannot be stored in that format.

Procedure for competing against a GPS-Sport.net training:

1. Browse a training page and download the GPX data

   or

   browse a route page with assigned training sessions and use the „Compete Against" function
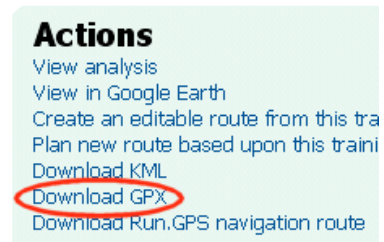
2. Download the GPX file and put it in the „My Documents/Run.GPS/routes" folder on your PDA

3. Select the GPX file as navigation route (Main Menu > Navigation > Select Route)

4.11.Interval Training and Speed Warnings

The interval training feature can be used to

- set lower and upper speed and heart rate limits (if only 1 interval is defined)

- perform real interval training by defining several intervals with different speeds.

If you're too slow or fast or your heart rate is too slow or fast, this will be announced through voice output ("too slow", "too fast"). Besides that, every interval change is announced.

Configure your interval training by clicking Main Menu > Training Settings > Interval Training:
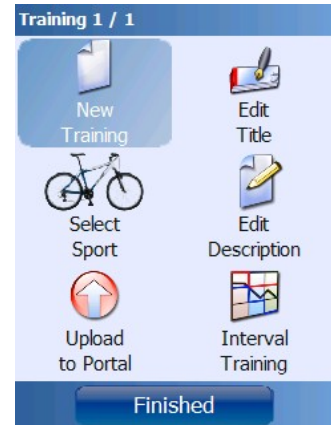
It's possible to add any number of intervals. After going through all defined intervals, **Run.GPS** starts at interval 1. If only *one* interval is defined, it will be repeated endlessly – in this case it does not matter what duration is set for this interval.

To switch to the next interval after a certain distance instead of time, click "Switch to distance mode".

Interval configurations can be stored, loaded or deleted.

Displaying some information on the current interval:
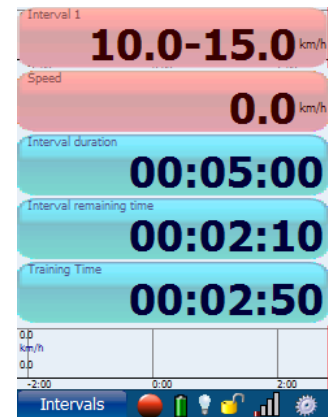
4.12.Automatic Lap Detection

A lap is a defined part of your training track for which you can get the same training parameters as for the whole track. It doesn't necessarily have to end at the same point where it started.

4.12.1.New Lap When Target Is Crossed

The idea behind that function is that **Run.GPS** automatically starts a new lap whenever you cross a certain position. You may use this feature when running on a cinder track or track driving with a race car. Afterwards you can compare your lap times and speeds etc.

How does it work?

Basically, you have to define the spot where the start/finish line is by setting the navigation target to that position (route end point or placemark). Whenever you cross the navigation target - a new lap is started.

Procedure

First, you need to enable automatic lap detection. To do this, go to Main Menu > Configuration > General Settings > Lap Detection and check the "when crossing target" option.
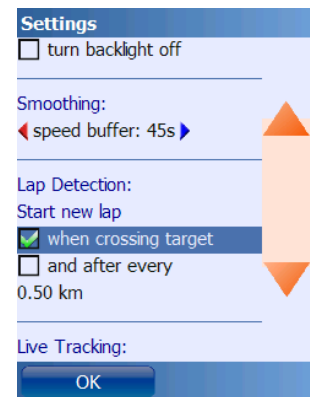
After that, go to the start/finish line or the place where a new lap should be started. If you don't have a route or placemark yet, create a new placemark selecting Main Menu > Placemarks > New:
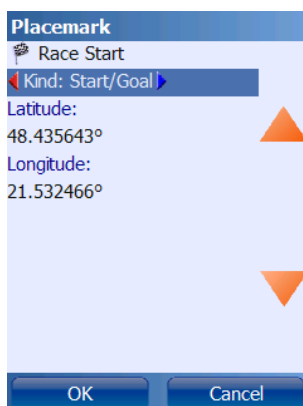
If your GPS signal is valid, the coordinates are filled in automatically.
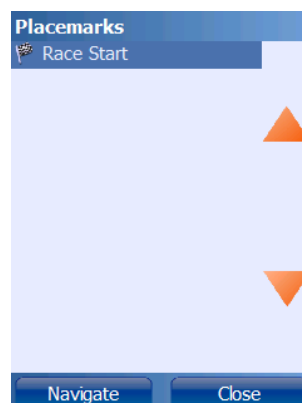
Select the placemark as navigation target.
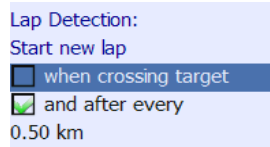
Different ways to get the same result:

- create a placemark at the cursor position on the map
- create a navigation route - the end point of the route will be used for lap detection

Now everything should be set up correctly and you can start the training.

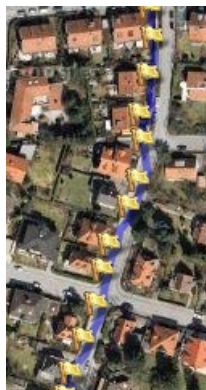Whenever you cross your destination target, a new lap is started:
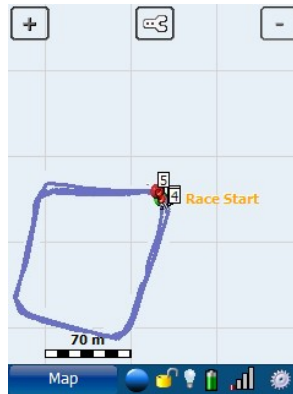
4.12.2.New Lap When Covering a Defined Distance

Another possibility is to start a new lap when a certain distance is covered. To do this, go to Configuration > General Settings and check the "Start new lap after every x.xx km" option.

Example: starting a new lap each 10 meters

4.13.Loading Altitude Profiles

Since **Run.GPS Trainer UV** release 2.2.0 it's possible to import altitude profiles from navigation routes. This means that both the altitude profile of the covered way and that of the way ahead are displayed on the Diagram Screen. This function is useful for mountain sports of any kind to estimate the quality of the path ahead. For flat country sports, GPS altitude values are too inaccurate to be very useful.

The only requirement for getting altitude profiles for the route lying ahead in **Run.GPS** is to use GPX or KML data containing altitude information.

You may follow these steps:

1. open GPS-Sport.net and start „Route Planner"
2. create a navigation route and save it
3. put the navigation route into the Download Cart
4. download the route from Run.GPS (Online Services > Download Cart)
5. in Run.GPS, activate this route as navigation route (Navigation > Select Route)
6. open the Diagram Screen and select distance as x-value and altitude as y-value

The blue part of the diagram shows the part already covered and the brown part is the part lying ahead.
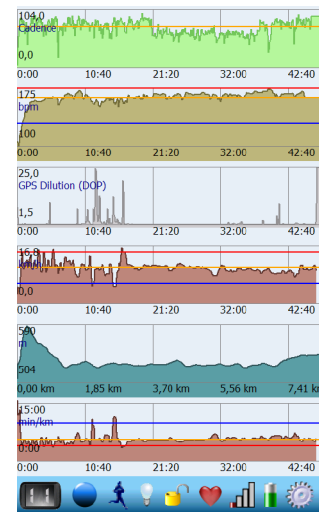
4.14. Using Heart Rate Monitors
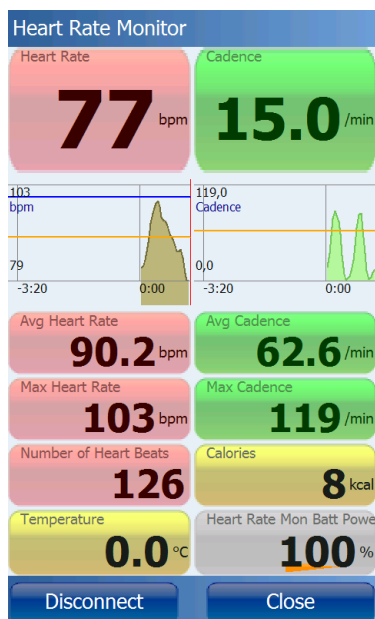
Dialog for capturing heart rate and cadence data

The following ways exist to get a heart rate monitor connected to **Run.GPS**:

- Real time connection through Bluetooth (recommended)

  - Polar® WearLink®+ transmitter Bluetooth
  - Zephyr™ HxM
  - FRWD B Series
  - Other Bluetooth heart rate monitors (generic driver – select "Other Bluetooth HRM" to try)

Diagrams: cadence, heart rate, DOP, speed, altitude, pace

- Adding heart rate data (afterwards) to the training report on the GPS-Sport.net portal website

  - Polar HRM files (file suffix „.hrm")
  - Oregon Scientific CSV files (file suffix „.csv")
  - FRWD Sports Computer TXT (file suffix ".txt")

Data analysis is very restricted if you add your heart rate data afterwards (only simple diagrams will be generated). In contrast to that, if you use a real time HRM connection via Bluetooth, you can overlay the data gathered (heart rate, calorie consumption on basis of heart rate, …) with the data coming from **Run.GPS**.

Note: Since only Android 2.0 or greater includes the Bluetooth Serial Port Profile, you can only use heart rate monitors with Windows Mobile or Android 2.x.

### 4.14.1.Polar® WearLink®+ transmitter Bluetooth®

Polar® offers a high-quality Bluetooth® based heart rate strap that can connect to Windows Mobile or Google Android (2.0 or later) based devices.

Setting up the Polar® Wearlink® transmitter Bluetooth® for Run.GPS Trainer on Windows Mobile:
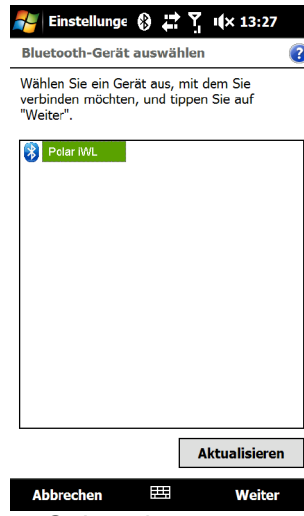
1. Moisten the contact pads of the strap and wear the strap – when the straps gets contact to your body it is automatically switched on
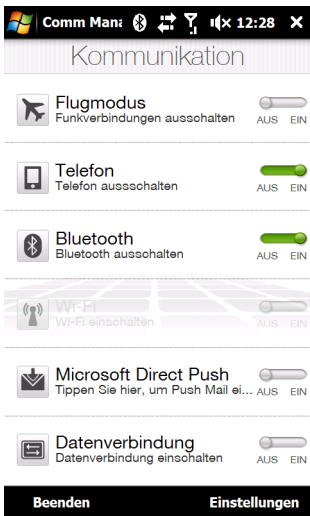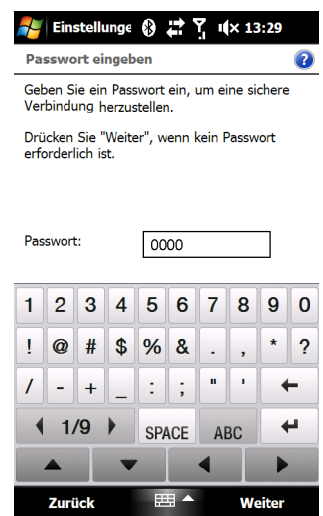

2. Activate Bluetooth on your smartphone (e.g. by using the Comm Manager, depending on which device you own)
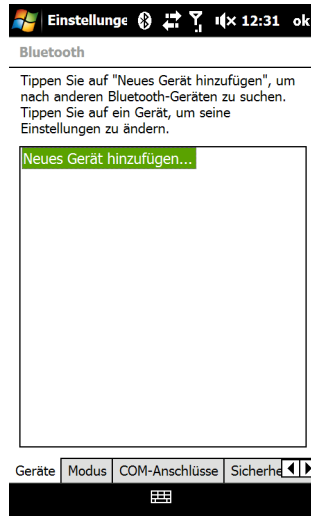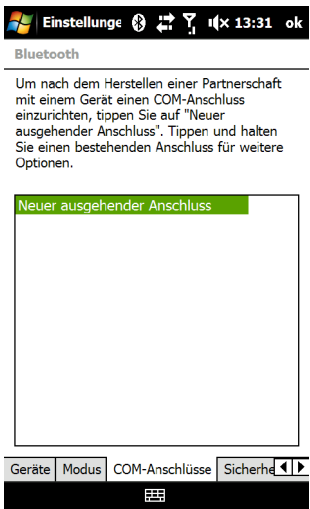

3. Open the Bluetooth connection settings in Windows Mobile and add a new device
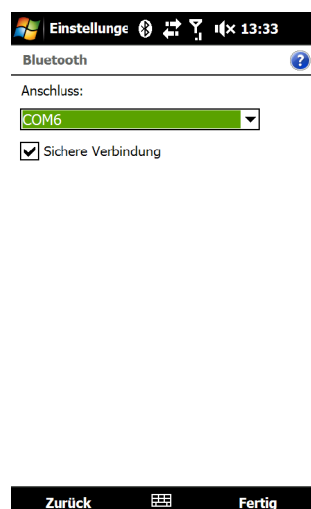

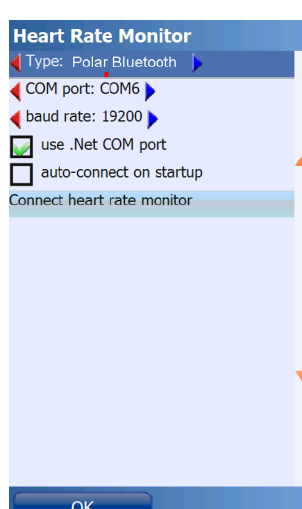4. Select the new Bluetooth device
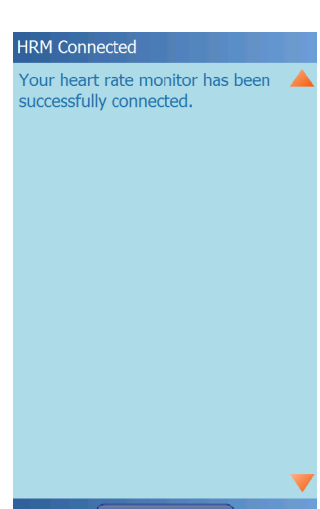

5. Enter "0000" as password

6. Open the "COM Port" tab and add a new outgoing port (if not already added automatically)

7. Assign an unused port (e.g. COM6, COM7, COM8, ...)

8. Configure the device type and the COM port in Run.GPS (Configuration > Heart Rate Monitor)

9. Connect the HRM

68

<u>Setting up the Polar® Wearlink® transmitter Bluetooth® for Run.GPS Trainer on Google Android (2.x)</u>:

1. Moisten the contact pads of the transmitter strap and wear the strap – when the transmitter strap gets contact to your body it is automatically switched on
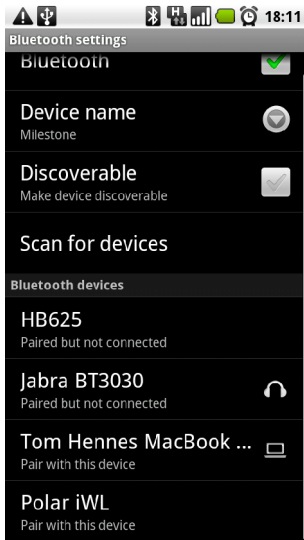
2. Open Bluetooth settings and activate Bluetooth, then search for devices
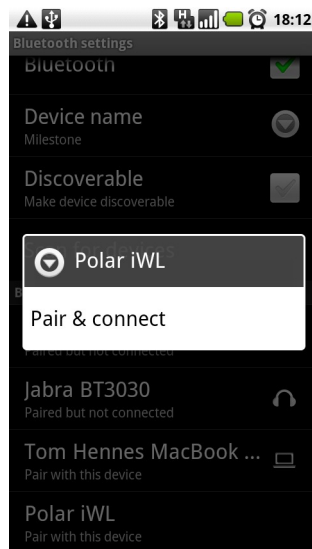
3. Pair your smartphone and the Polar WearLink transmitter Bluetooth
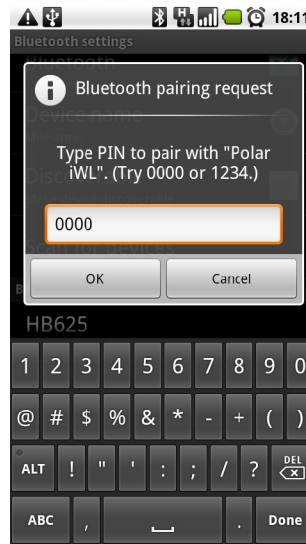
4. Enter "0000" as PIN
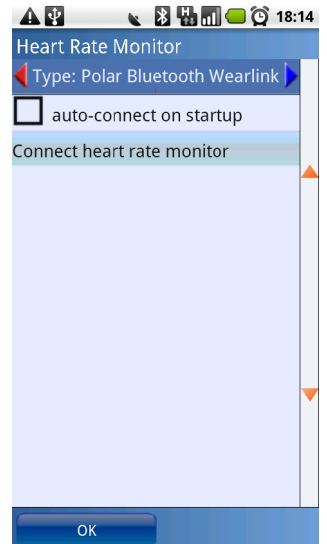
5. Configure "Polar Bluetooth WearLink" as device type in Run.GPS (Configuration > Heart Rate Monitor) and connect the heart rate transmitter

4.14.2.Zephyr™ HRM and HxM

Zephyr™ HRM: Heart rate monitoring and ability to connect via Bluetooth

Zephyr™ HxM: Heart rate and **cadence** monitoring, ability to connect via Bluetooth; also able to measure **distance** and **speed** using the built-in accelerometer when GPS is weak or when doing indoor sports

Setting up the Zephyr™ HRM/HxM on Windows Mobile:

1. Moisten the contact pads of the HRM belt and wear the belt – when the HRM gets contact to your body it is automatically switched on
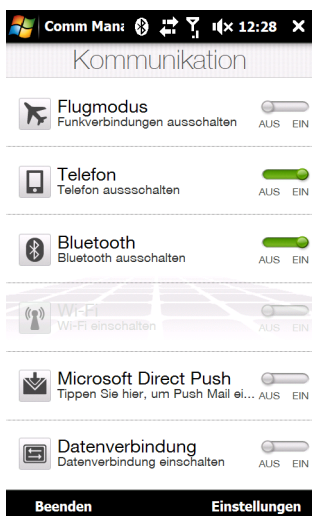
2. Activate Bluetooth on your Pocket PC (e.g. by using the Comm Manager, depending on what device you own)
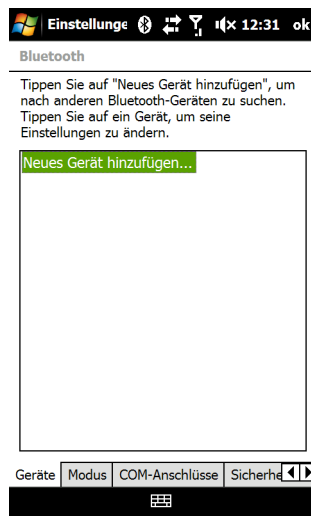
3. Open the Bluetooth connection settings in Windows Mobile and add a new device
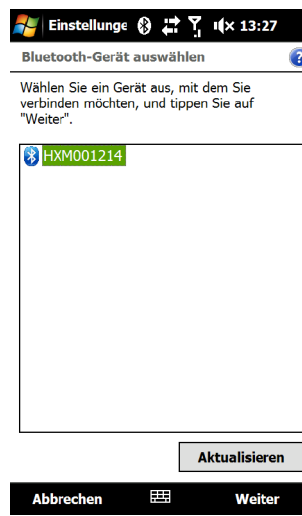
4. Select the HRM/HXM device
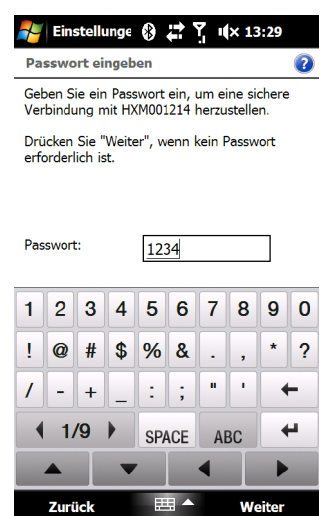
5. Enter "1234" as password
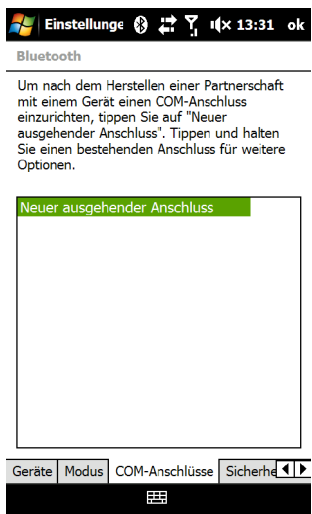
6. Open the "COM Port" tab and add a new outgoing port (if not already added automatically)

7. Assign an unused port (e.g. COM6, COM7, COM8, ...)

*8. Configure the device type and the COM port in Run.GPS (Configuration > Heart Rate Monitor)*

9. Connect the HRM

70
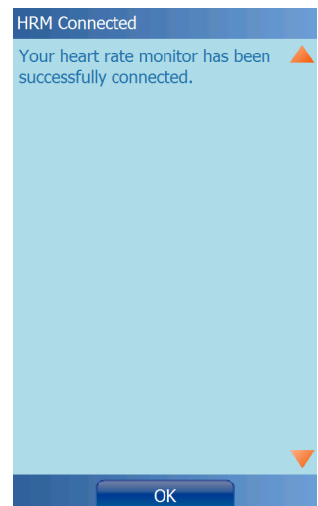
Setting up the Zephyr™ HRM/HxM on Google Android (2.x):

1. Moisten the contact pads of the HRM belt and wear the belt – when the HRM gets contact to your body it is automatically switched on

2. Open Bluetooth settings and activate Bluetooth, then search for devices
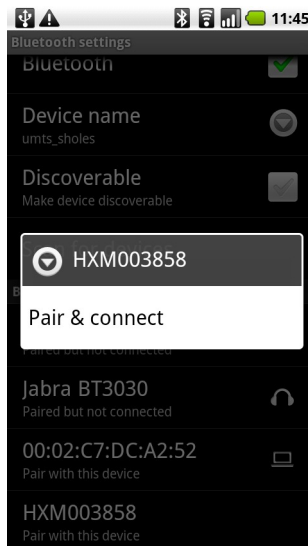
3. Pair your Smartphone and the Zephyr HxM
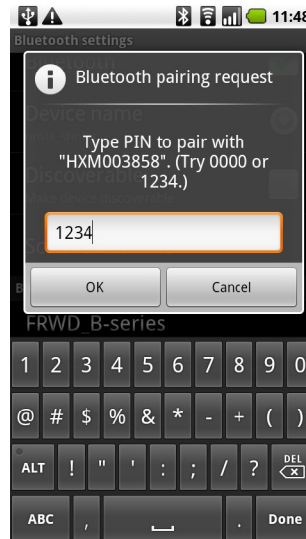
4. Enter "1234" as PIN
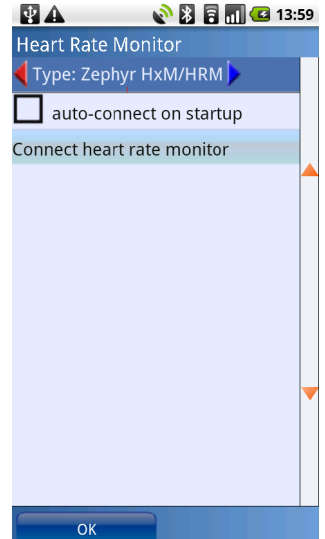
5. Configure "Zephyr HxM" as device type in Run.GPS (Configuration > Heart Rate Monitor) and connect the HxM

4.14.3. FRWD B Series

<u>FRWD B100</u>: Measurement of heart rate (compatible with many pulse watches), air pressure, barometric altitude and temperature

To find out if your pulse watch is compatible with the B100, visit the manufacturer's website: www.frwd.fi

<u>FRWD B600</u>: same as B100, but delivered with a HRM belt

Using the FRWD B100 to connect a pulse watch with Run.GPS

<u>Hint</u>: If you want to use the B100/B600 as heart rate monitor **and** as GPS device at the same time, configure it as GPS device **only** (heart rate data will be used automatically when the FRWD GPS device is connected).

Setting up the FRWD B100 or B600

1. Moisten the contact pads of your HRM belt belonging to your B600 or pulse watch and wear the belt

2. Switch on the FRWD B100/B600, attach the device at your arm and wait until the heart rate signal is received (the red light blinks)
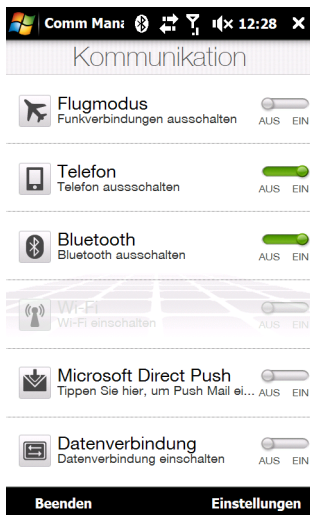
3. Activate Bluetooth on your Pocket PC (e.g. by using the Comm Manager, depending on what device you own)
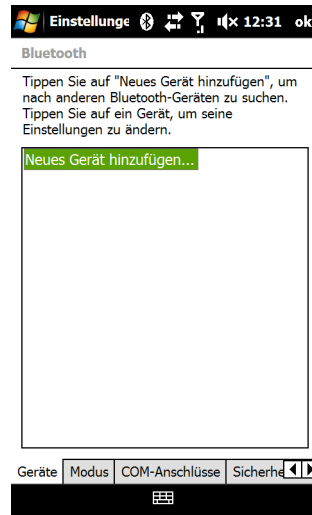
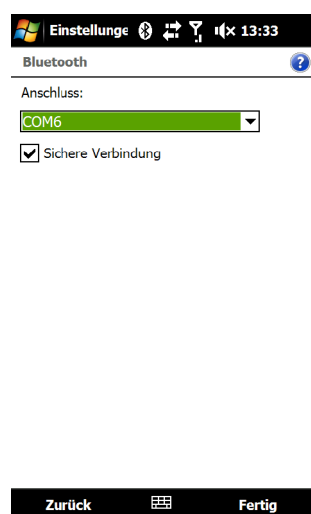*4. Open the Bluetooth connection settings in Windows Mobile and add a new device*
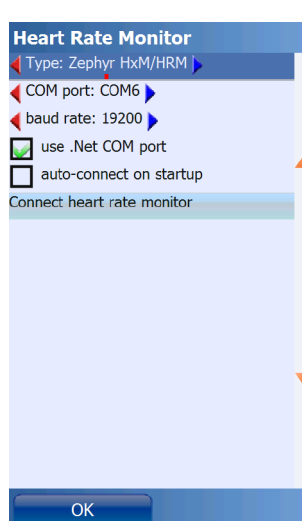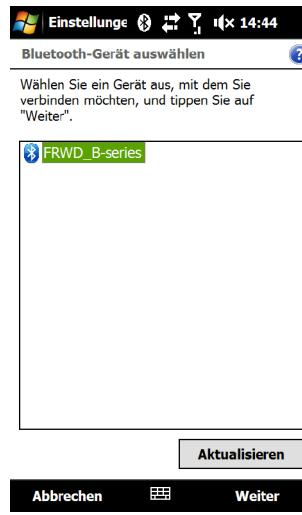
5. Select the FRWD device
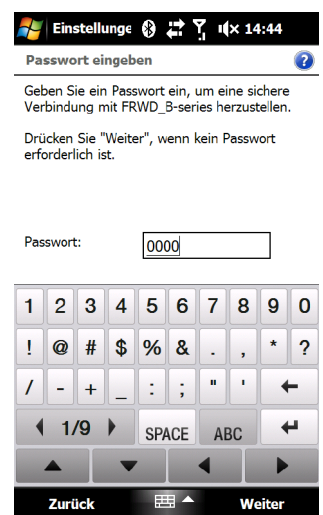
6. Enter "0000" as password
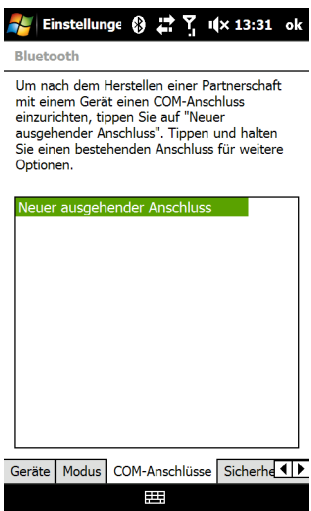
*7. Open the "COM Port" tab and add a new outgoing port (if not already added automatically)*
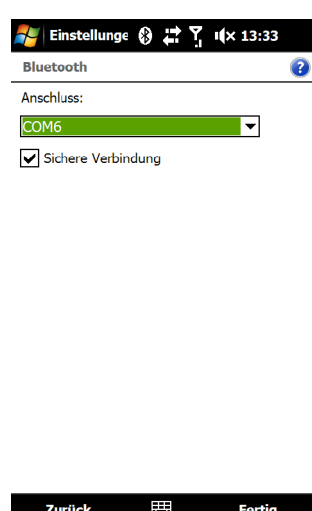
8. Assign an unused port (e.g. COM6, COM7, COM8, ...)
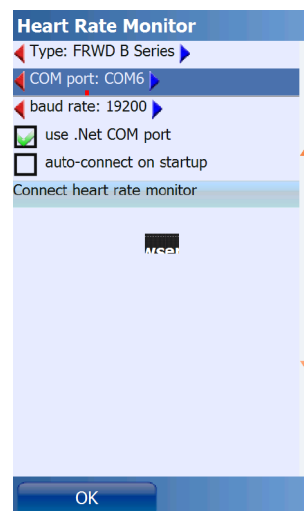
*9. Configure the device type and the COM port in Run.GPS (Configuration > Heart Rate Monitor)*
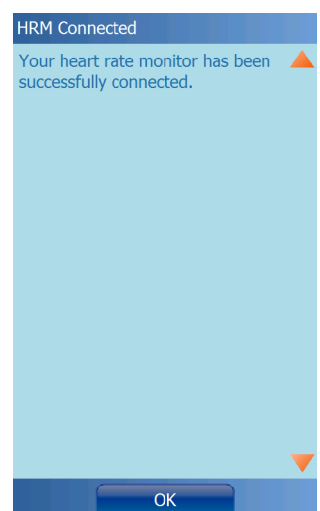
10. Connect the HRM

4.14.4. Recording Heart Rate With the Oregon Scientific Heart Rate Logger

The Oregon Scientific Heart Rate Logger can be connected with most heart rate monitor belts using the ANT protocol[2]. After training the heart rate data is synced to a PC using an USB cable and then added to a **Run.GPS** training recording on GPS-Sport.net.

Required accessories:

- any heart rate monitor (should work with most models, even the very cheap)

- Oregon Scientific Heart Rate Logger (about 40 USD)

The Heart Rate Logger is fastened to the heart rate monitor belt using a clip.

To start the Heart Rate Logger you press the orange button once, to turn it off you hold the button for two seconds. After the training one connects the data logger to a PC using an USB cable. The heart rate data is then transmitted to the "SmartSync" software that comes with the Oregon Scientific Heart Rate Logger.

Use "export activity" to export the heart rate data to a file of type "CSV".
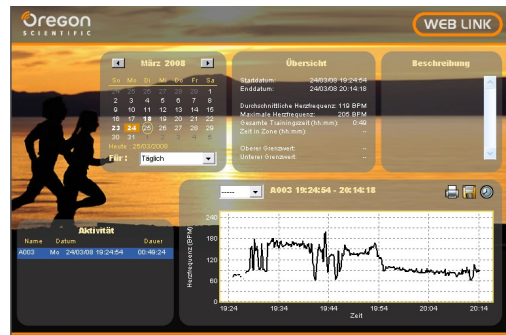
Subsequently the CSV file is uploaded to the GPS-Sport.net portal and thereby added to the corresponding **Run.GPS** training recording:

The heart rate diagram is then displayed beneath the speed diagram on the training page:

---

2 The ANT protocol is a wireless networking protocol commonly used in exercise equipment, see http://en.wikipedia.org/wiki/ANT_protocol
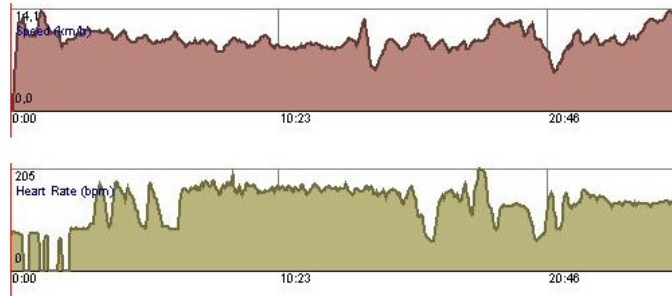
4.14.5.Exporting Heart Rate Data

In order to make a comprehensive analysis of heart rate data possible, recorded heart rate data is written to a file. The exported file can be evaluated with various PC programs. For now the file will only be created if you use a Zephyr™ HRM/HxM heart rate monitor, because this is the only compatible HRM that supplies NN interval data.

The export file can be found in the individual training folder on your device and is name "hr-data.dat". The file is automatically written as soon as your push the stop button to stop a training recording. The text file contains the heart beat timestamp (milliseconds) in the first column of the file. The second column contains the duration of the NN interval (milliseconds).

Example:

```
63930 779
64674 744
65429 755
66189 760
```

Hint: If you face problems importing the "hr-data.dat" file, it might help to remove lines that contain zero values or to remove the entire left column. On GPS-Sport.net there is a simple tool to do this job. It can be accessed through "My GPS-Sport > Extras > Simplify R-R Data File" (logged in users only).

5. Maps

Hint: The most convenient way to access maps is by using online maps (see chapter "OpenStreetMap"). For this you need either a cell phone contract with inexpensive data services or the possibility to download the maps at home through WiFi/WLAN.

5.1.Online Maps

Important Notice: there is no guarantee that OpenStreetMap maps will always be available in Run.GPS. Both the technical and legal requirements might change.

5.1.1.The OpenStreetMap Project

The OpenStreetMap project has the goal of making worldwide map data freely available for everyone. The project adapts the Wiki principle as everyone is entitled to join in the creation of maps. OpenStreetMap data is published under the *Creative Commons Attribution-ShareAlike 2.0* licence.

OpenStreetMap on the Internet: http://www.OpenStreetMap.org

Advantages:

- Maps can be freely used by everyone

- Data is available both in vector and raster format at different zoom levels (**Run.GPS** also uses OpenStreetMap maps at different zoom levels)

- Maps can be accessed online

- Possibility to participate in map building

Disadvantages:

- Map is not complete yet

- Hiking tracks not available yet

5.1.2.Activating the OpenStreetMap layer in Run.GPS

To activate the OpenStreetMap layer in **Run.GPS**, click

the configuration button [icon] on the map screen or
choose Configuration > Map Settings from the main menu.
Then open the dialog "Items on Map".
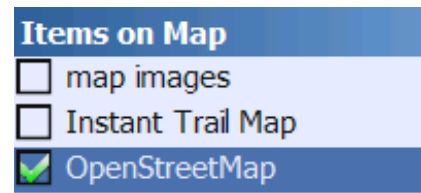
No OpenStreetMap data is delivered with **Run.GPS**. The map tiles are downloaded online
via the Internet connection on your Smartphone and stored in a cache. Map tiles are
downloaded only once and stored in the **Run.GPS** data directory.

Important Notice: because OpenStreetMap tiles require a lot of memory, the **Run.GPS** data
directory should be moved from the main memory to the storage card. See chapter
"Filesystem" for a guide on how to do this.

To download OpenStreetMap data en route, active the
"automatic download" in the same dialog further below.
You Smartphone will build up a GPRS or UMTS data
connection on demand.
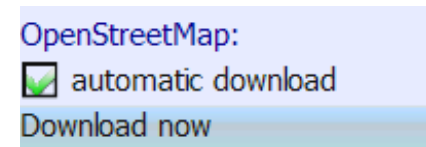
Important Notice: downloading map data through the cell network data services may be
very expensive depending on your contract.

5.1.3.Loading Maps Prior to a Planned Tour

If you don't want to download map tiles en tour, you can download them at home using a
WLAN connection or ActiveSync. To define the area you want to download,
open the map screen and scroll and zoom to this area. An easier way to do
this is to choose a navigation route and select the "Full Route" map mode.

The map screen will look like this:
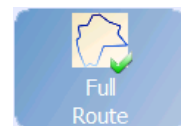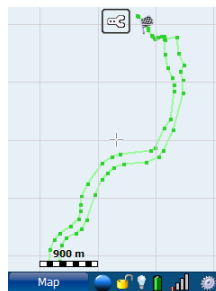
Now choose "Download now" from the "Items on Map"
dialog:
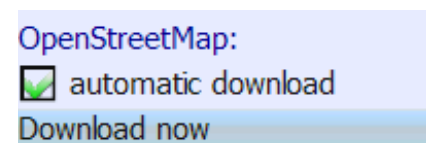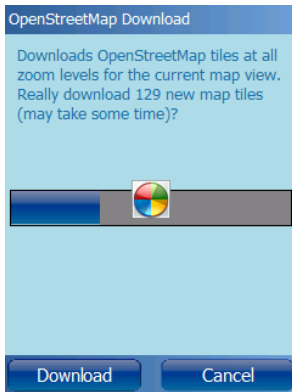
Run.GPS calculates how many tiles have to be downloaded. The download can take some time so you should have a fast Internet connection.

After the download the map is displayed:

The map tiles are downloaded at all relevant zoom levels.
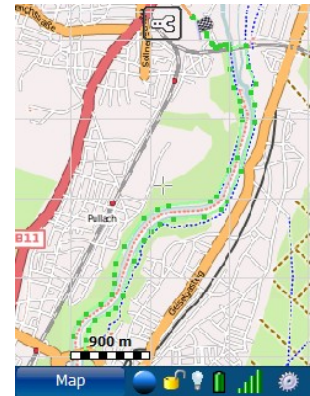
5.1.4.Contribute to the OpenStreetMap using Run.GPS

To contribute to the map building process, you can upload your tracks to the OpenStreetMap server. The tracks can then be manually edited using an OpenStreetMap editor. Track data has to be revised and assigned to a street section.

Tracks can be committed to OpenStreetMap in GPX file format. There are three ways to do this:

- direct upload (browse Training Log > Details > Upload to portal and select OpenStreetMap.org as upload target)

- (**only with Run.GPS Trainer UV Pro**) directly store a training recording as GPX file (open the "Training Log", browse a training, select "Details" and choose "export GPX")

- upload the training to the GPS-Sport.net portal, download the GPX data from there and upload the GPX file to OpenStreetMap

The tracks can then be edited and added to the OSM map using editors like JOSM or Potlatch:

78

5.1.5.Cycle Map and OpenPisteMap

Activation of OpenStreetMap alternatives

Cycle Map and *OpenPisteMap* are both based upon the *OpenStreetMap* project. In both cases topographical information (contour lines) are added. For many utilizations of **Run.GPS** this is a great advantage.

Both mapping projects are licenced under „Creative Commons Attribution Share-Alike 2.0" licence (see http://creativecommons.org/licenses/by-sa/2.0/).

The alternative maps are activated in the map settings, option "Items on Map".

Cycle Map

Web: http://www.gravitystorm.co.uk/osm/

Content: OpenStreetMap ways with focus on ways for cycling, contour lines

OpenPisteMap

Web: http://www.openpistemap.org
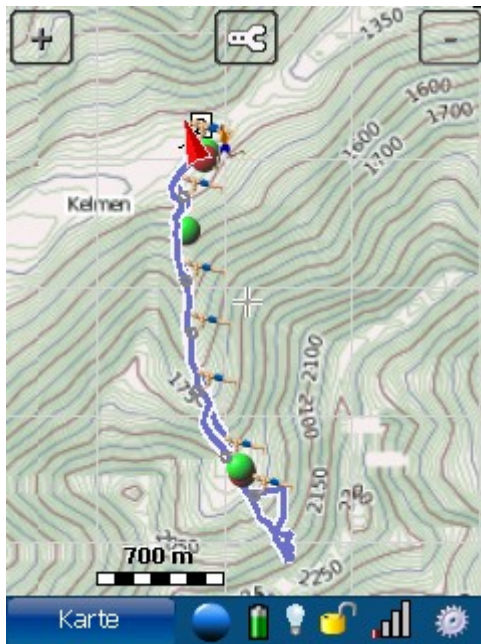
Content: OpenStreetMap ways, contour lines, piste and ski-lift plans for many skiing regions
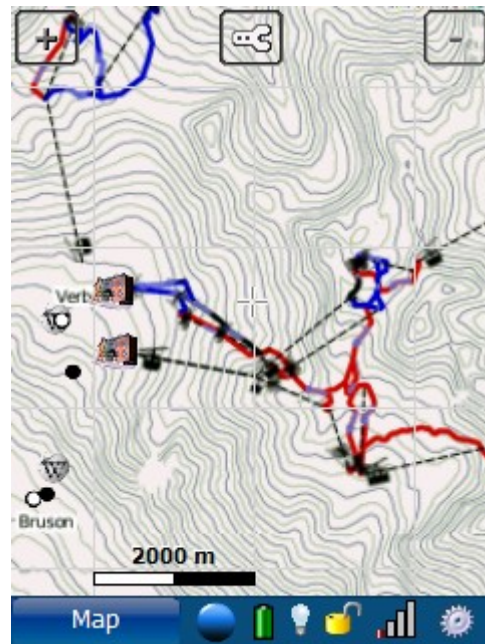
Hint: since map parts (tiles) are created on demand in some *OpenStreetMap* alternatives, it might take some time and some tries to download those maps.

5.1.6.Adding More Online Map Layers

Advanced users only!

In addition to the OpenStreetMap based maps it's possible to add new online map layers. These layers can be defined in the *maps.xml* file which is located in the **Run.GPS** date directory.

In order to define map layers, you need some knowledge regarding geo information systems and XML. But it's also possible to simply download a *maps.xml* file from the forum and replace the original *maps.xml* with the downloaded one.

Forum: http://www.gps-sport.net/forums/thread/692-0/Adding-map-layers
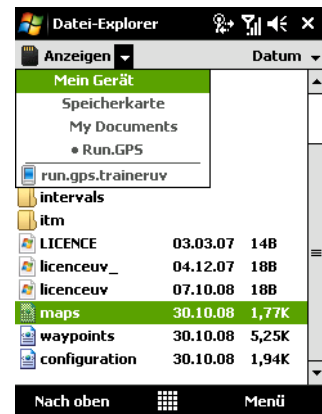
Procedure:

1. Download a *maps.xml* file from the forum and store it on your PC
2. Copy the file to your mobile device to the „/SD-Card/My Documents/Run.GPS/" directory (the name „SD-Card" may vary)
3. After restarting **Run.GPS**, the added map layers can be selected in the "Items on Map" dialog
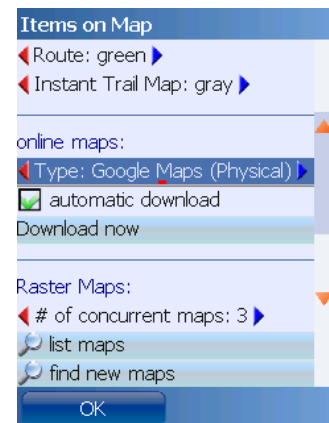
If you want to define your own online map layers nevertheless, take a look at this *maps.xml* example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<mapSources>
  <mapSource>
    <name>OpenStreetMap</name>
    <dirName>osm</dirName>
    <copyright>OpenStreetMap.org</copyright>
    <minZoom>7</minZoom>
    <maxZoom>16</maxZoom>
    <urlPattern>http://tile.openstreetmap.org/$z/$x/$y.png</urlPattern>
  </mapSource>
  <mapSource>
    <name>OSM Cycle Map</name>
    <dirName>cycleMap</dirName>
    <copyright>OpenCycleMap.org</copyright>
    <minZoom>7</minZoom>
    <maxZoom>13</maxZoom>
    <urlPattern>http://www.thunderflames.org/tiles/cycle/$z/$x/$y.png</urlPattern>
  </mapSource>
</mapSources>
```

To insert a new map layer, a *<mapSource> ... </mapSource>* block is added. The following parameters must be defined:

- **name**: name of the map layer
- **dirName**: directory in which the map tiles will be stored (cache) – must not contain spaces or special characters
- **copyright**: copyright information
- **minZoom** and **maxZoom**: minimum and maximum zoom for the map
- **urlPattern**: internet address pointing to the map tiles source (the variables $z, $x and $y define the position of the map tiles)

5.2.Run.GPS Atlas Format

Run.GPS Atlas files (*.ratlas) can contain hundreds or thousands of map tiles in different zoom levels and become up to 5 GB big. Despite the huge size fast access to the map tiles is guaranteed by powerful index structures.

Advantages you get from using Run.GPS Atlas files:
- maps can be downloaded at home
- everything is in one file (this requires much less space on your SD card as opposed to using many small files)
- fast access

Disadvantage:
- map parts that are missing cannot be added (downloaded) to an existing .ratlas file while your outdoors

Information about the file format and links to the required tools etc can be found here:
http://www.rungps.net/wiki/RunGPSAtlasFormat

Creating Run.GPS Atlases

The easiest way to create Run.GPS Atlas files is to use **Mobile Atlas Creator**[3]. The application allows you to select many different map layers (OpenStreetMap, Google Maps, …) and output formats. You should select "Run.GPS Atlas" as output format.

---
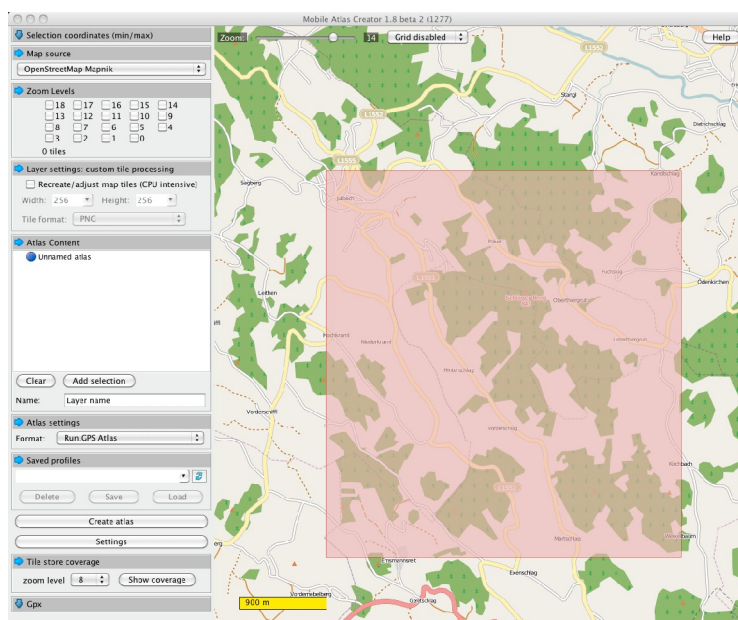
3 The current version of Mobile Atlas Creator does not yet support Run.GS Atlas format, but you can find a modified version of the program on http://www.rungps.net/wiki/RunGPSAtlasFormat . Also available on this page is a simple command line tool for creating atlasses.

After creation you simply copy the .ratlas file to

/sdcard/My Documents/Run.GPS/map_images (Windows Mobile)

or to

*/sdcard/Run.GPS/map_image*s (Android)

on your mobile device. After restarting the Run.GPS application, the new map can be selected from Configuration >> Map Configuration >> Items on Map >> Online Layers.

Hint: the "automatic download" checkbox has no function when you select a .ratlas file as source.
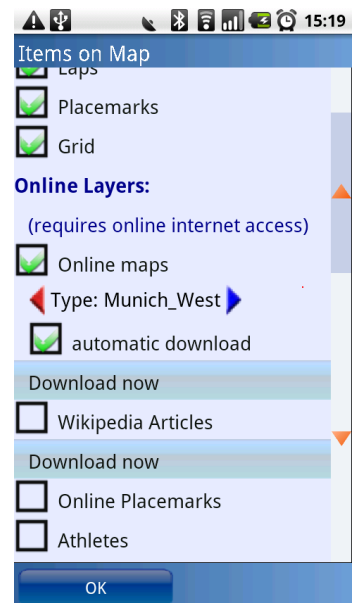
5.3.Instant Trail Mapping

„Instant Trail Mapping" is a function combining all recorded tracks automatically in order to create a track map.

Using this feature, you can build yourself a map of your environment.

Displaying the „Instant Trail Map" and adding new tracks to the map can be separately turned on or off (Configuration > Map Configuration > Items on Map).

Displaying the „Instant Trail Map":

Items on Map
☐ map images
☑ Instant Trail Map
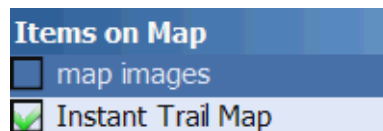
Add recorded tracks to the „Instant Trail Map"::

Instant Trail Mapping:
☑ enable recording
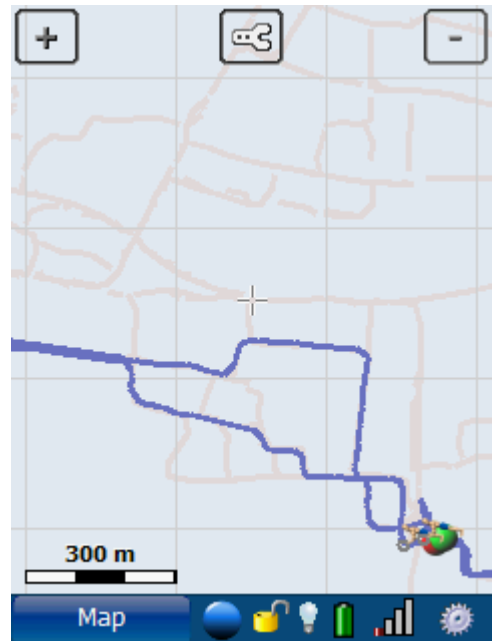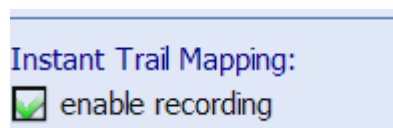
5.4. Raster Maps

Raster maps can be obtained from various sources. For some, automatic calibration is possible. For others, the maps have to be calibrated manually (with software support).

With automatic calibration:

- www.GPS-Sport.net (based upon Google Maps)

- Google Earth

- Map Calibrator (Freeware Tool, see www.gpstuner.com)

If you import maps from one of the above sources or if you want to calibrate using a GPX path file, you simply copy both the map image file and the position file to the „Run.GPS/map_images" directory:

- jpeg + xml: raster map image + XML position file
- jpeg + kmz: raster map image + KMZ position file (Google Earth) (Windows Mobile version only)
- jpeg + gmi/gsi: raster map image + GMI/GSI position file (Map Calibrator) (Windows Mobile version only)
- jpeg + gpx: raster map image + GPX path file for calibration

With manual map calibration:

- Scanning of printed maps

- Software/CD-ROMs (with partially automated calibration using paths):

    - Kompass Digital Maps

    - MagicMaps

    - TOP50 Maps

- Sources on the Intenet:

    - www.outdooractive.de

    - maps.live.com

    - maps.google.com

For calibrating maps we recommend using tools such as Map Calibrator or TTQV.

5.4.1.Importing from GPS-Sport.net

This normally is the fastest way to get maps into **Run.GPS**. However, on Google Maps mountain tracks and other small tracks are still missing. **Run.GPS** Route Planner is free to use for everybody. You'll find the application at www.GPS-Sport.net .

Preparations

First of all you should sign up with www.GPS-Sport.net . The service is free and you only need an email address to register.

Our recommendation: use the Firefox browser to export raster maps – using other browsers might result in more work because you'd have to cut off extra borders using a graphics program.

Using Route Planner

Log in and start Route Planner by clicking on the blue „Route Planner" button.

Scroll the map to the spot you want to export. You can use the „Find Location" feature to get there faster. You can also define your home location by clicking on the map on the home screen. In this case, Route Planner always pops up at your home location.
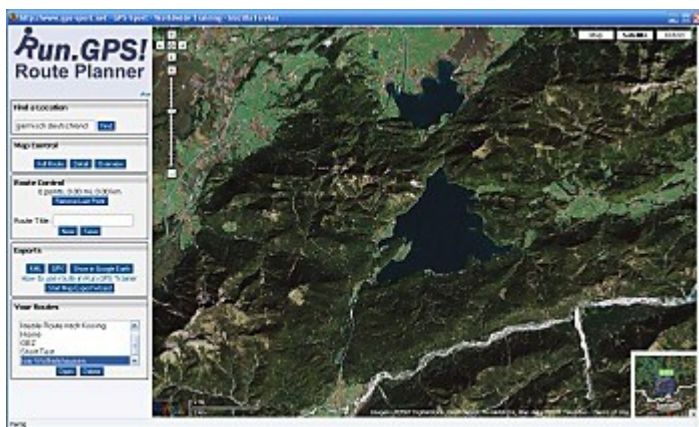
Once you have chosen the right spot for the map export, click the button „Map Export".

Step 1: change to fullscreen mode and assign name

To avoid having to cut off extra parts of the map image (scrollbars etc.) later on, you should switch your browser to fullscreen mode. Press the F11 key to do this (works for Firefox and Internet Explorer).

Enter a proper name for the map (without any special characters) and select the desired format for the map (streets, satellite imagery or both).

Press „Continue".

Step 2: screenshot

Now you should only see the actual map on the screen – no status bar, no scroll bars ... If you still have extra elements on your screen, you'll have to cut those away later on using a graphics program.

Note: at this stage you can still move the map to select a different map sector.

If you're at a PC, press the „Print" or „Prt" key to make a screenshot (which will be put to the clipboard).

Now click **once** and **without moving the map** anywhere on the map to get to the next step.

Step 3: save screenshot and position file

Position file? What the hell is that?

Fact is that we need a map – and the information where exactly the map is situated. I.e. the exact geographic position and extension of the map. We use a simple XML file which contains the coordinates of both the north-west and south-east corners of the map.

Now switch back to non-fullscreen mode by pressing F11 (on a PC) again.

Start „MS Paint" or any other graphics program to store the screenshot. Press „Ctrl-V" to paste the content of the clipboard into the program.
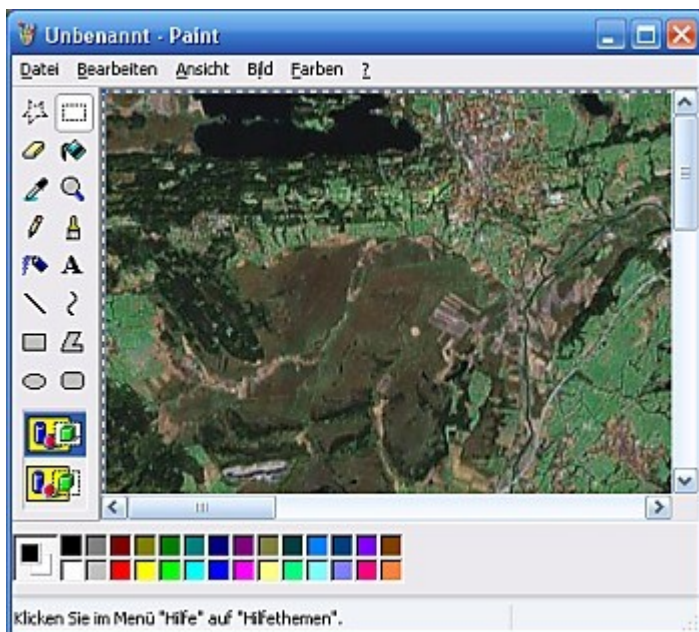
If there are extra elements like scroll bars in the image, cut those off. Then store the map image in JPEG format giving it the name „<map_name>.jpg" (suffix must be lower-case) where „<map_name>" is the name you've already entered in step 1.

Run.GPS Map Export Wizard 3/4
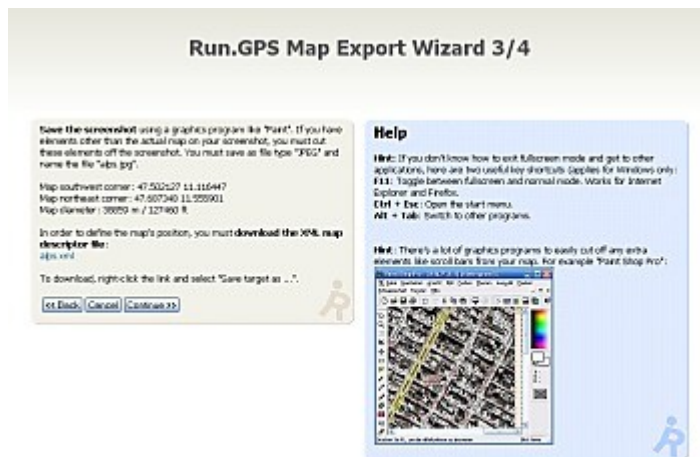
In addition to the image file – as said before – the position file is needed. Store the XML position file by right-clicking and selecting „Save As". Then continue to step 4.

Step 4: copying the files to the PDA

Now you have all you need to use the map. Close the wizard and copy the files „<map_name>.jpg" and „<map_name>.xml> from your PC to your PDA using ActiveSync.

Both files must be copied to the map images directory: „My Documents/Run.GPS/map_images".

5.4.2.Importing from Google Earth

Raster maps can be imported very fast and easy from Google Earth. With some exercise the whole procedure takes only 30 seconds per map.

Quick overview of the procedure:
1. Select the geographic extension of the map to be imported
2. Store map image file as JPEG
3. Create a placemark at this sport and save it as KMZ
4. Copy JPEG and KMZ to your PDA - done

A bit more elaborate:

1) Start Google Earth and **turn off the „terrain" layer** (IMPORTANGT: otherwise the map would be warped).

Select the map view you want to export.
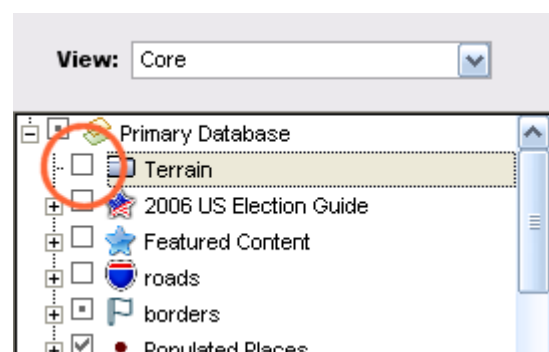
The map must be **northed**. This means that the top of the map must be pointing exactly to north. You may turn on the grid to check the alignment.

The compass must be pointing to north and the topmost line of the grid must be parallel to the screen border:
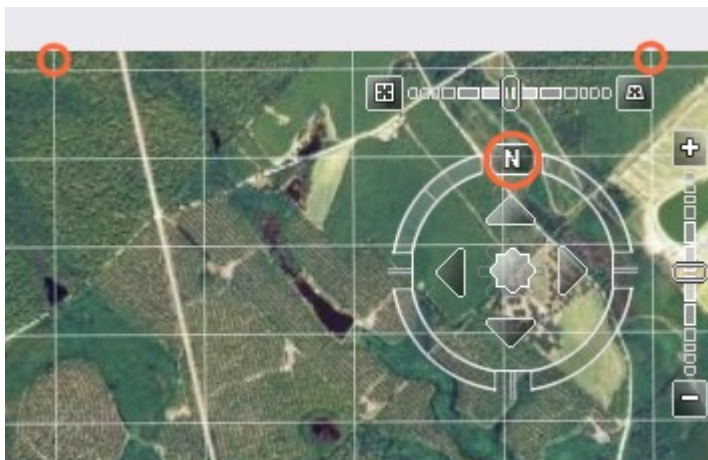
After northing the map, turn off the grid.

2) Save the map in JPEG file format

Save the map image as JPEG and give it a meaningful name:
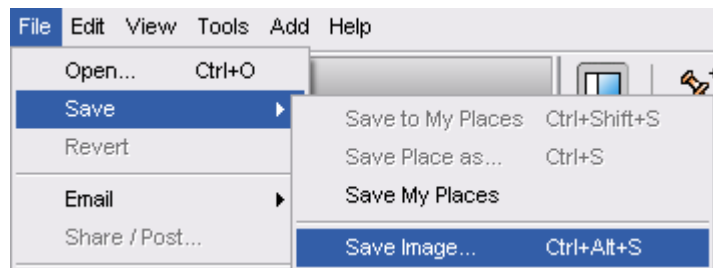
Hint: Turn off the tool bars in Google Earth to get a bigger map (higher resolution).

3) Create a placemark and save it in KMZ format

The placemark describes the exact geographic position of the map.

Important: from step 2 to step 3 neither the map nor the created placemark must be moved or zoomed in any way.

Click Add > Placemark:
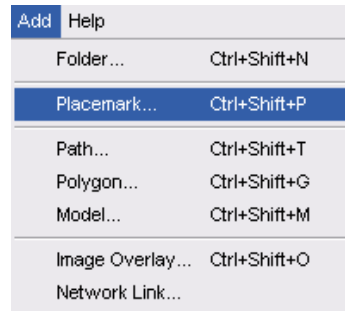
Enter the **same** name you have given to the map image file.
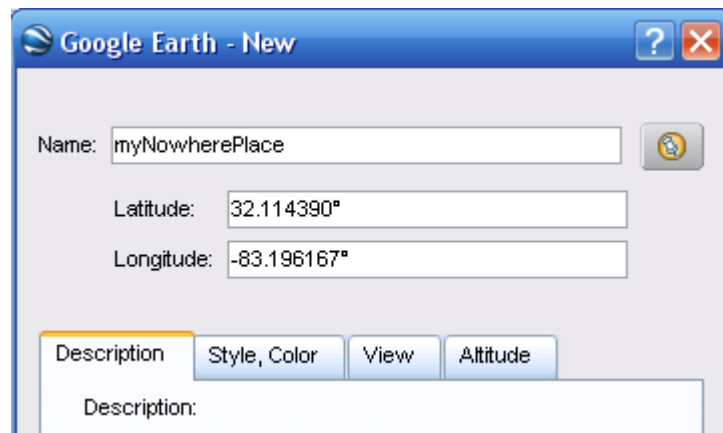
Store the placemark:
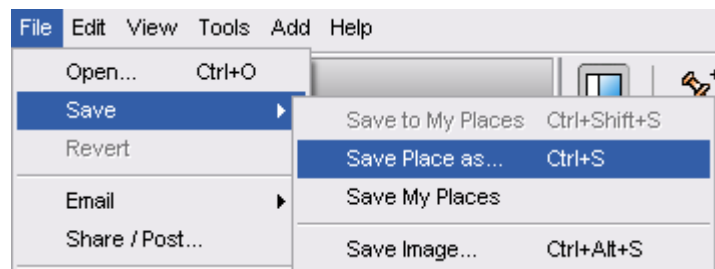
Now you should have two files:
- the JPEG file
- and the KMZ file defining the position of the map

E.G.:

4) Copying the files

Copy both files to the „My Documents/Run.GPS/map_images" directory. Then restart Run.GPS or use the „Scan for Maps" function (Configuration > Map Settings > Items on Map > Scan for Maps).

5.4.3.Importing from other sources using a GPX path

The idea behind this is that a path (or a route) which covers the whole map can be used for map calibration. You simply draw a path from the upper left (north-west) corner to the lower right (south-east) corner. Map image and GPX path file are simply copied to **Run.GPS** which then extracts the map's position form the GPX path file.

Step by step:

1. Open the map program and move to the area to export

2. Take a screenshot (use keys Alt + Print on a PC – the screenshot will be put to the clipboard) and cut off any extra elements using a graphics program (so only the map itself remains)

3. Store screenshot in JPEG (Suffix „.jpg") file format

4. Draw a path from the NW corner to the SE corner of the map and store it in GPX format with the same file name but suffix „.gpx" instead of „.jpg"

5. Copy image and GPX file to directory „My Documents/Run.GPS/map_images/" on your PDA

6. Restart **Run.GPS** or execute the „Scan for maps" function (Configuration > Map Settings > Items on Map > Scan for Maps)

Some compatible programs / CD-ROMs:

- Kompass Digital Maps

- MagicMaps
  (for MagicMaps, the GPX file must be opened with a GPX program such as Trackmaker in order to change the encoding from „ISO-8859-1" to „UTF-8" because ISO-8859-1 is not supported by Windows Mobile)

Unfortunately calibration quality is rather poor using this type of calibration.

5.4.4.Importing from Other Sources using XML Position Files

Basically maps can be used from all available sources – if the map is „northed" and the coordinates of the corners are known.
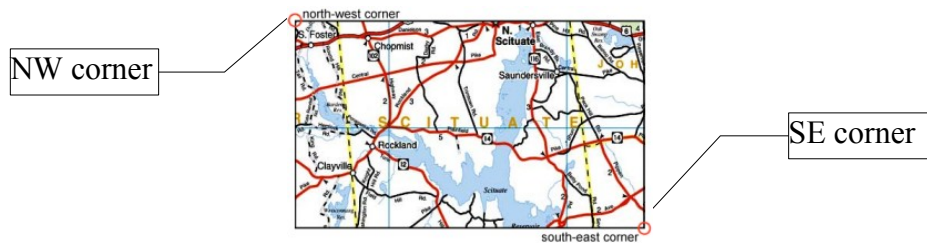
The following guide is something for experts who know how to handle XML files etc.

Create a new text file with the following content:

```
<?xml version="1.0" encoding="UTF-8"?>
<mapImage>
  <upperLeftCornerLat>39.633984000</upperLeftCornerLat>
  <upperLeftCornerLon>-96.136794000</upperLeftCornerLon>
  <lowerRightCornerLat>39.052152000</lowerRightCornerLat>
  <lowerRightCornerLon>-95.040936000</lowerRightCornerLon>
</mapImage>
```

Insert the corner's coordinates of the map.

```
upperLeftCornerLat = Latitude NW corner
upperLeftCornerLon = Longitude NW corner
lowerRightCornerLat = Latitude SE corner
lowerRightCornerLon = Longitude SE corner
```

Save the file using the same file name as for the JPEG image file but with suffix „.xml" instead of „.jpg".

Copy both the image file and the XML file to your PDA into the directory „My Documents/Run.GPS/map_images". After that restart Run.GPS or execute the „Scan for maps" function (Configuration > Map Settings > Items on Map > Scan for Maps)

5.4.5. Help – My Maps Aren't Being Displayed

Since using raster maps is a rather complex issue, it is quite common that some problems occur.

Hints / Checklist:

- if the „map images" check box is not checked – no raster maps are being displayed 🙂

- raster maps are display only if there is a valid GPS signal (the position is known, - signal level is green)

- in some cases the „GPS ID Bug Fix" has been activated on error (this leads to wrong GPS coordinates below 1.0; can be deactivated in Main Menu > Configuration > GPS Settings)
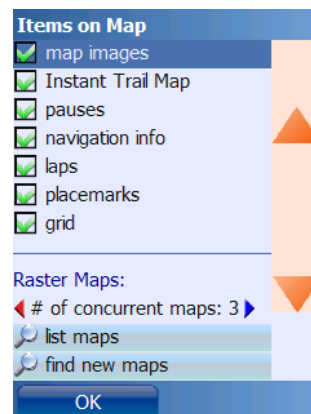
- after copying the map files **Run.GPS** must be restarted or the „Scan for Maps" function must be executed for the maps to be found

- if the free main memory is insufficient, the maps cannot be loaded; those maps will be marked red in the list of maps; quit other programs if possible

- for each raster map you can display the current status and the geographical position (Main Menu > Configuration > Items on Map > List Maps > click on map name)
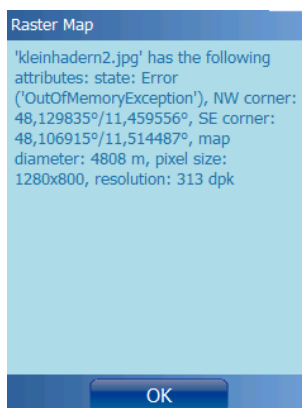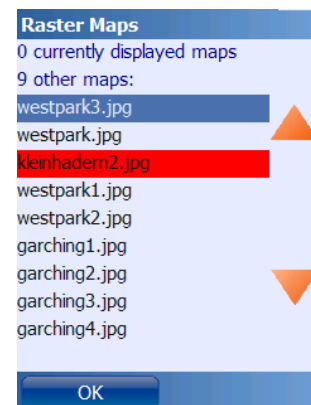
6. Online Services

Online services accessing the portal websites www.GPS-Sport.net or www.GPSies.com are free. But you will have to pay for the data services provided by your mobile network operator.
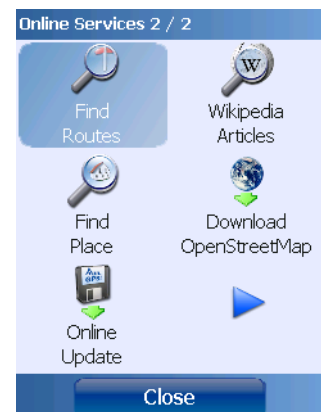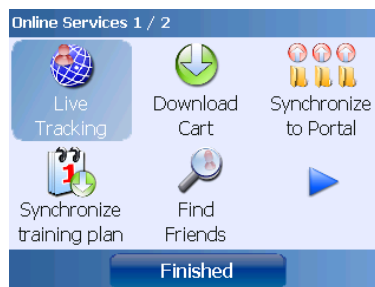
6.1. Requirements For Use

To use online services, the following requirements must be met:

- You need an active connection to the Internet (like the one you use for browsing)

- GPS signal is good (required only for some services)

- You are signed up with GPS-Sport.net and have entered you data in the Configuration > User dialog (required only for some services)

There are at least three ways to build up a connection to the Internet from your device:

- Using the mobile network:
  You connect using GPRS, EDGE or UMTS services. This can be expensive depending on your contract.

- Through WLAN/WiFi:
  Only possible at home or near a hotspot. You need a WLAN capable device.

- Via your PC:
  With Windows Mobile 5 or greater it is possible to share your PC's Internet connection on your mobile device – by connecting it via USB cable.
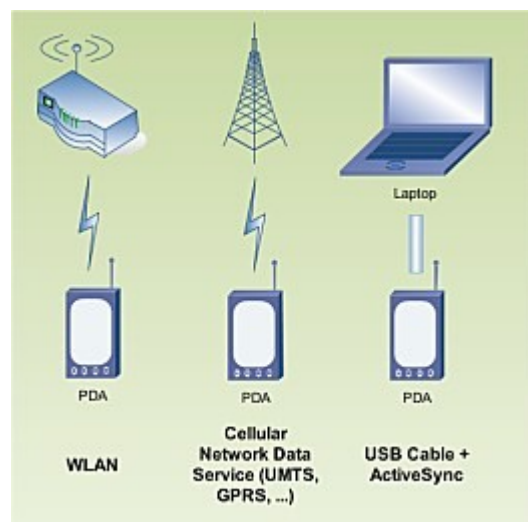
6.2.Live Tracking

Live Tracking enables you to send your geographic position to the www.GPS-Sport.net Community Server or to other web sites. Since **Run.GPS Trainer UV 2.1.0** Live Tracking also retrieves all friends' geographical coordinates and displays them in the map. You can edit your Friends List on the GPS-Sport.net portal.

WARNING: Using Live Tracking, your geographic position becomes visible for everyone. There is no way to hide it. Also see chapter "Safety Aspects".
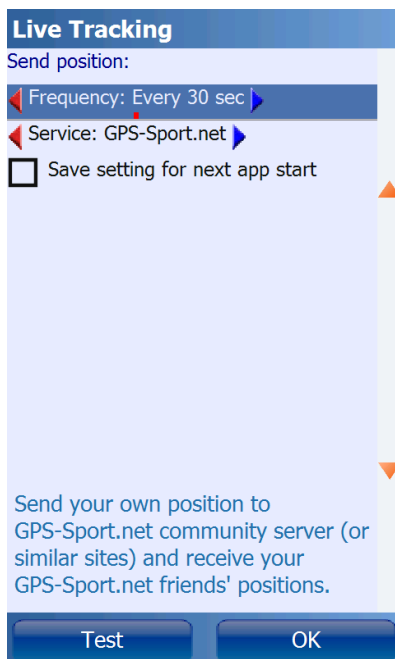
Prerequisites:

- A connection to the Internet on your PDA (GPRS, UMTS, WLAN or some other service)

- Valid GPS signal

- You need to be signed up with the GPS-Sport.net portal web site (this service is free) and you entered your user name and password in the **Run.GPS** user settings dialog

In order to test the live tracking function, choose "Live Tracking" from the main menu and press the "Test" button:

Now a window will pop up which should look about like this:
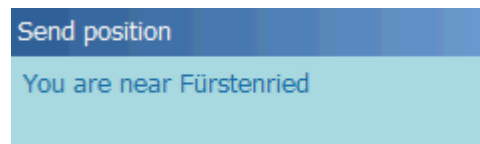
Note: normally Live Tracking is reset (turned off) when you restart the application. If you want to override this behaviour and want to have Live Tracking always active, check "Save setting for next app start". Remember if you have Live Tracking active, your position will be accessible by everybody.

If you configure your position to be sent regularly, others will be able to follow your movement in the GPS-Sport.net portal:

Live tracking benefits:

- Athletes can localize their companions

- Trainers are able to monitor their athletes on the screen

- Constantly sending the last known position to a central server may give athletes some extra security – especially when going solo (but this can only be an additional provision as there is no guarantee for the reliability of the system)

You may also monitor multiple athletes at a time using Google Earth. Just click the "track in Google Earth" link to add an athlete to Google Earth. This can be used, for instance, when you have multiple athletes in a race.

6.2.1. Live Tracking on a Different Portal Server

If you don't want to use the GPS-Sport.net Community Server, you can also configure **Run.GPS** to send the position to a different web server. Select Configuration > General Settings from the main menu.

     Press "Set Custom URL" to enter the URL of the server

Press "Reset URL" to reset it to GPS-Sport.net

You can use several parameters in the URL:

Parameter Name	Function	Example
::lat	Latitude in decimal format	48.234432
::lng	Longitude in decimal format	11.123456
::alt	Altitude in meters	555

::spd	Speed in kilometers per hour	12.5
::u	User name	robert
::p	Password	he67ged5
::u64	User name, Base64-encoded	dGhvZG8=
::p64	Password, Base64-encoded	I4vGHx9=
::durSec	Duration of training in seconds	2344
::cadence	Current cadence	85
::avgCadence	Average cadence	87
::hr	Current heart rate	130
::avgHeartRate	Average heart rate	125
::distM	Distance in meters	1000
::title	Training title	"Half-Marathon London"
::sport	Sport, prefixed by a '+' if recording is active or by a '-' if recording is switched off	+running
::remainingDur	Remaining estimated training duration in seconds (only if the user selected a navigation route or target)	233
::remainingDist	Remaining training distance in meters (only if the user selected a navigation route or target)	1560
::ascent	Total ascent in meters	250
::descent	Total descent in meters	100
::calories	Total calories burned in this training session in cal (not kcal!)	890000
::dop	GPS dilution of precision	6.7
::song	Song currently played by a supported player (currently only "MortPlayer" on Windows Mobile)	"ACDC - TNT"

A live tracking URL might look like this, for example:

http://www.sport-portal-1.net/liveTracking.php?user=::u64&password=::p64&lat=::lat&lng=::lng

6.3. Synchronize Training Plan

Synchronizes the active training plan from the GPS-Sport.net portal to **Run.GPS**. The current training plan is overwritten.

This function is only available in the **Pro** edition.

6.4. Download Cart

Downloads all items from the www.GPS-Sport.net download cart. This is a convenient way to access routes because you don't have to copy the files manually.

6.5. Synchronize to Portal

This function uploads all training recordings that have not been uploaded yet. You can upload to either www.GPS-Sport.net or www.GPSies.com. If you activate "scan for images", **Run.GPS** will search the entire device for photos taken during the training. Those images are automatically assigned to their geographical coordinates.

Note: only training sessions recorded with **Run.GPS** release 2.1.0 or greater can be synchronized.
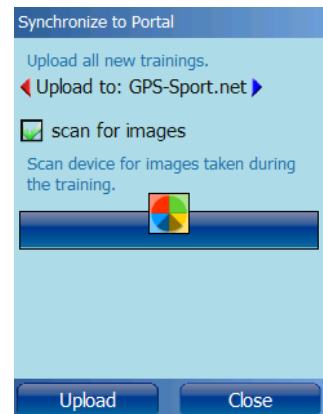
6.6.Find Friends

Use this function to find your friends, for instance when skiing or skating. If you activate Live Tracking, you can even have you friends' coordinates refreshed regularly. You friends' positions are also displayed on the map. You can use the Navigator to have yourself navigated to a friend whose position is dynamically refreshed.

The list of friends relevant for this function is created in the GPS-Sport.net portal (would be too complicated from **Run.GPS**). Sign in at www.GPS-Sport.net and browse your Athlete's Homepage. Then click

Add or invite a Friend

You'll get the opportunity to send a short message to your friend:

The friend will receive an email and must accept your request with a click.

Once this is done, you can always access your friends' positions online:
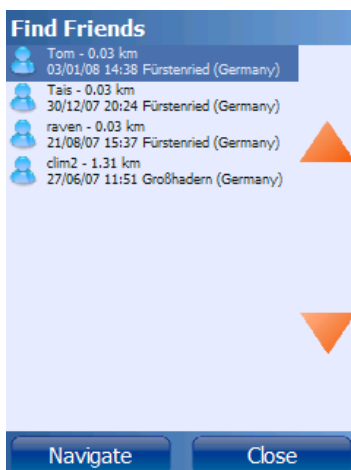
Both the names of your friends and the distance to them is shown in the list. There is also the date and time your friend's last position update.

Click on an entry to navigate to a friend.

6.7. Find Routes

With this function you can find nearby routes. This service always finds the routes closest to your current position.

Note: many portal users do not supply the sport you can do on a route. Therefore, you might get a hiking route when requesting a cycling route. You should have a look in the description to figure out if the route gives you what you wanted.

Note: from GPS-Sport.net both routes *and* training recordings are retrieved.
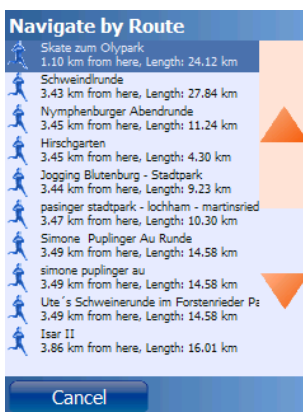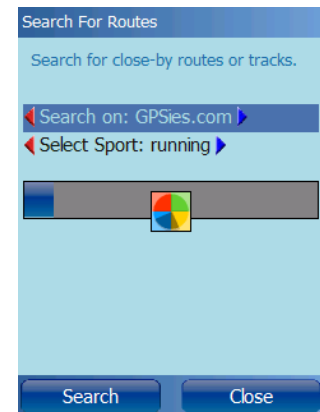
The list of routes you'll get. Click on an entry to see further details:
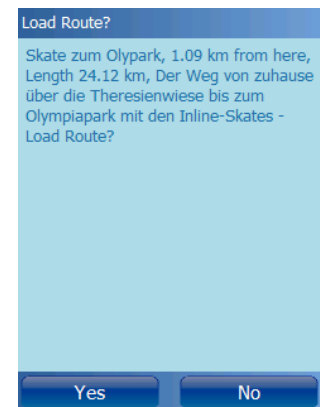
6.8.Find Wikipedia Articles

Using this function you can find all Wikipedia articles describing objects near you (places, buildings, mountains, lakes, ...). Search is always from your current position, with a maximum search radius of 10 kilometers.
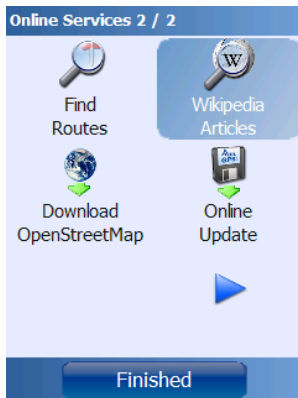
Selecting the function from the Online Services menu
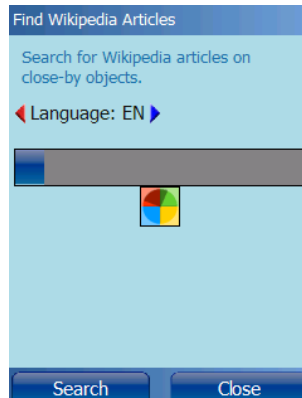
Searching for articles in a specified language
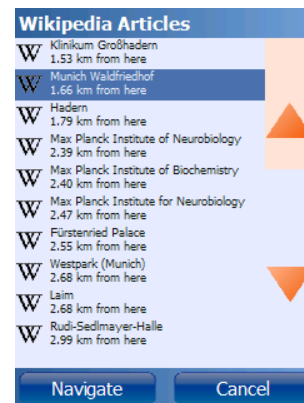
List of articles, ordered by distance from your position with the possibility to navigate to an object
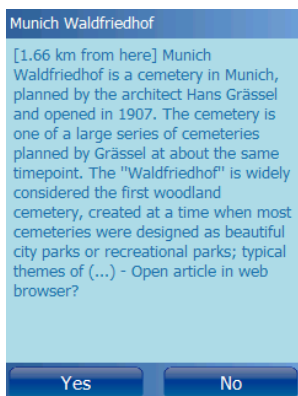
Short summary of the article

Wikipedia article in a web browser

Wikipedia articles displayed on map can be accessed by double-clicking on the items

This service is based upon the great *geonames.org* services.

6.9.Online Place Search

Online place search makes it possible for you to find a place and display it on the map or to navigate to it. To search for a place, the first step is to enter the name of a city or village.

You then get a list of places, ordered by distance from your current position.

After selecting a place from the list, you can display it on the map, navigate to that place or create a new placemark.

6.10.Online Update

Online Update makes it possible to directly download the latest **Run.GPS** release to your mobile device.

6.11.Download OpenStreetMap

See chapter „OpenStreetMap".

7. Reference

7.1.Configuration

Since most of the configuration items are self-explanatory, this manual will go to detail only for the more exotic functions.

The configuration menu:
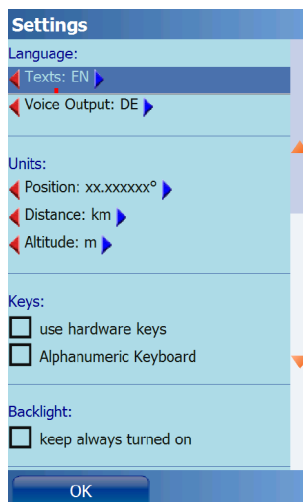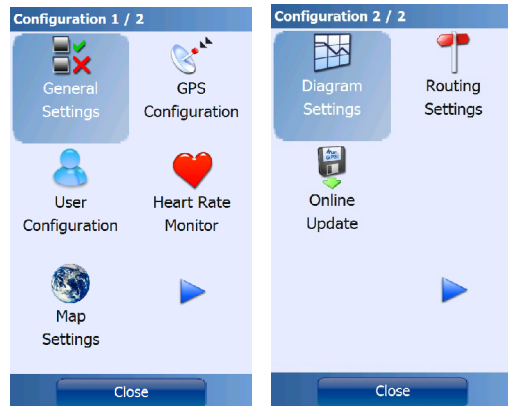
General Settings

Units, keys, behaviour when device is locked

When application is locked: the application lock is activated by pressing the lock symbol in the control bar. If you use the "lock keys completely" option, the phone keys will also be locked (depending on your device's capabilities). By checking the "turn off screen completely" you will have the touch screen completely shut down – which means you will not be able to unlock the application using the touch screen.

.
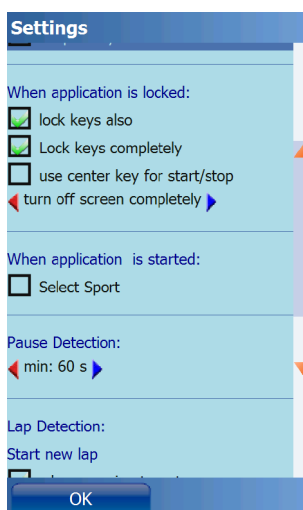
Pause Detection: the program automatically detects pauses in your training; this settings defines the minimum time of standstill before a pause is registered

When application is started: if you check the "Select Sport" option, **Run.GPS** will ask you to select your sport each time the application is started.
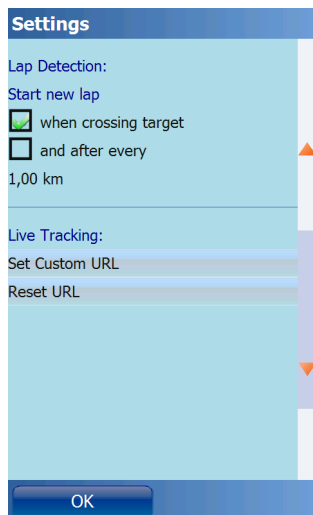
Lap Detection and **Live-Tracking**: see corresponding chapters

GPS-Settings

See chapter „GPS"

User Settings

User name and password are needed exclusively for accessing portals such as GPS-Sport.net and GPSies.com.

The other values are important for calorie calculation.

BMI: the Body-Mass-Index is a statistical measure of the weight of a person scaled according to height

< 18.5	Underweight
18.5 to 25	Normal
25 to 30	Overweight
> 30	Obese
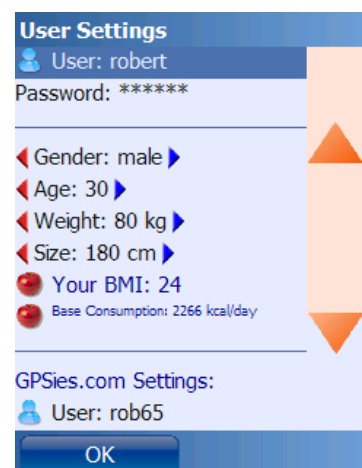
Base Consumption: the base calorie consumption during a day without doing sports (roughly estimated value)

GPSies.com Settings: user name and password for uploading to GPSies.com

OpenStreetMap Settings: user name and password for uploading tracks to OpenStreetMap.org (only required for upload – not for downloading maps)

Crossingways Settings: user name and password for accessing the Crossingways.com site

Heart Rate Monitor:

It's usually enough to enter the type and select the COM port. The other settings should be set to their defaults.
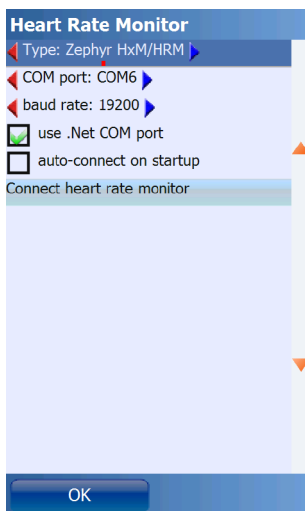
Type: Type of the connected heart rate monitor

COM port: COM port through which the Bluetooth heart rate monitor is connected to your device

baud rate: baud rate of the serial connection

use .**NET COM port**: use standard COM port implementation, - deactivate only in case of connection problems

auto-connect on startup: connect HRM on application startup (must be already attached to your body)

Map Settings and **Diagram Settings**: see chapters "Map" and "Diagram"

Routing Settings: see chapter "Online Navigation"

7.2.Keyboard Layout (Windows Mobile)

Lock or unlock device:

Key	Function
Hold **Right function (soft) key** *or* **0** *or* **Down key** *for three seconds*	Lock or unlock device

7.2.1.Keyboard Layout on the Main Screens

Key	Function
Left function key	Select main screen
Right function key	Open main menu
Left	Move left (map or diagram)
Right	Move right (map or diagram)
Up	Move up (map)
Down	Move down (map)
Center Key (Enter)	Start/Stop training
1	Show previous screen
2	Show next screen
3	New lap
4	Select previous button
5	Press selected button and change display
6	Select next button
7	Zoom in
8	Open configuration dialog (on map or diagram screen)
9	Zoom out
0	Lock application

7.2.2. Keyboard Layout on Input Dialogs

Concerns all dialogs where the keyboard is displayed.

Key	Function
Left function key	Deletes the last character entered
Right function key	Leave dialog and store value
*	Toggle shift mode
#	Writes a space
0	Character 0
1	Select a character from .,-;:_°'/=?1
2	Select a character from abc2
3	Select a character from def3
4	Select a character from ghi4
5	Select a character from jkl5
6	Select a character from mno6
7	Select a character from pqrs7
8	Select a character from tuv8
9	Select a character from wxyz9

7.2.3. Keyboard Layout When Application is Locked

The following keys are used only if the setting „use center key for start/stop" is checked in Configuration >> General Settings.

Key	Function
Center key (Enter)	Start/stop training (if the option „use center key to start/stop training when application is locked" is checked)
Left function key	New lap (if the option „use center key to start/stop training when application is locked" is checked)
Right function key	Turn on background light for about 5 seconds

7.3.Keyboard Layout (Google Android)

7.3.1.Keyboard Layout on the Main Screens

Key	Function
Menu	Open main menu
Left	Move left (map or diagram)
Right	Move right (map or diagram)
Up	Move up (map)
Down	Move down (map)
Center Key (Enter)	Start/Stop training
Back	New lap

7.4.File System

7.4.1.The Run.GPS Data Directory

Location:

- /My Documents/Run.GPS (Windows Mobile) or
- /SD-Card/My Documents/Run.GPS (Windows Mobile) or
- /sdcard/Run.GPS (Google Android)

| Directory	Function
itm/	Here, the "Instant Trail Map" data is stored. To reset (clear) the Instant Trail Map, you can delete the directory (**Run.GPS** must be closed)
map_images/	In this directory the raster maps are stored: ● ratlas: Run.GPS Atlas file, can contain multiple maps and zoom levels ● jpeg + xml: map image + XML position file ● jpeg + kmz: map image + KMZ position file (Google Earth) (only Windows Mobile) ● jpeg + gmi/gsi: map image + GMI/GSI position file (Map Calibrator) (only Windows Mobile) ● jpeg + gpx: map image + GPX path file for calibration After modifying this directory, you have to restart **Run.GPS** or select Map Settings > Scan for Maps.
map_images/osm/	Contains OpenStreetMap data. There's one directory for each zoom level. If the directory has become too big or if you want to force **Run.GPS** to reload all tiles, you can simply delete the entire "osm" folder. Expert users: you can fill this directory with your own OpenStreetMap tiles.
reports/	Reports in HTML format are stored here
routes/	Contains navigation routes in KML or GPX format
users/uv-user/	Contains all user data and training recordings
users/uv-user/trainingsplans/	Trainings plans in XML format
users/uv-user/<month>/<trainingdir>/	This is the training directory. For each training recording, an individual training directory is created. The following data is stored here:

	- Actual track data
	- Title, description and other meta data
	- "hr-data.dat" file, which contains R-R interval data from the heart rate monitor (only created if you use a compatible heart rate monitor)
	- you can also copy JPEG images belonging to this training here; these images are *always* uploaded and included in reports

7.4.2.Moving the Data Directory to the Storage Card (Windows Mobile)

On most devices the main memory is much too small for storing loads of maps and track data. Therefore, it might be necessary to move it to a storage card.

Procedure:

1. Quit **Run.GPS**

2. Start Windows "File Explorer" (Start > Programs > File Explorer) (don't use ActiveSync on your PC to move the folder as files might be changed)

3. Select the „Run.GPS" data directory („My Documents/Run.GPS") by holding the stylus pressed on it

4. Cut out the folder
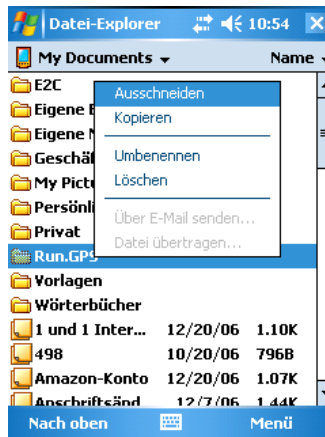
5. Browse the storage card („Storage Card" or „Memory Card" or „SD-Card" etc.)

6. If the folder "My Documents" does not yet exist on your storage card, create it (by holding the stylus pressed and choosing "new folder")
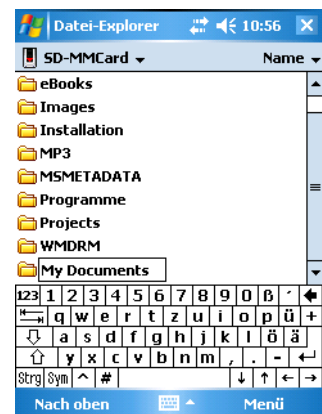
7. Go to directory „/<Storage Card>/My Documents" and
   paste the previously cut out "Run.GPS" directory here
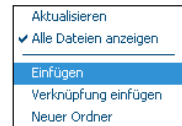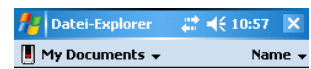
8. Start **Run.GPS**

7.5. Security Issues

Please note that using **Run.GPS** might result in your whereabouts being public. This is the case particularly

- when using the Live Tracking function (which send your geographical position to the GPS-Sport.net server or other servers)

- when you upload your training recordings to GPS-Sport.net, to GPSies.com or to a different server

If you do not want your geographical position to be public, do not use these two features.

7.6.Technical Data

Languages: English, German, French and Spanish with voice output, Czech, Dutch, Russian and Slovenian with English voice

Supported Operating Systems: Windows Mobile version 5 or higher, Windows Phone 7, Google Android 1.5 or higher

Hardware Requirements: internal or external GPS device; none regarding input device (stylus, keys or fingers can be used)

Supported Heart Rate Sensors: Polar® WearLink+ transmitter with Bluetooth®, Zephyr™ HRM, Zephyr™ HxM, FRWD B Series (Windows Mobile, Google Android version 2.0 or higher)

Required Free Main Memory: >= 5 MB

Supported Screen Resolutions: almost all resolutions are supported

GPS Support: Windows Intermediate and NMEA 0183 via serial port

Maps: Run.GPS Atlas files (*.ratlas), Raster maps and automatically generated map („Instant Trail Map"), online download of OpenStreetMap (www.openstreetmap.org), Cycle Map (www.gravitystorm.co.uk/osm/) and OpenPisteMap (www.openpistemap.org) maps (licensed under Creative Commons Attribution-Share Alike 2.0 Generic, creativecommons.org/licenses/by-sa/2.0/)

Raster Maps File Types: JPEG+XML, JPEG+GPX, JPEG+KMZ (only Windows Mobile), JPEG+GMI (only Windows Mobile), JPEG+GSI (only Windows Mobile)

Report Export File Type: HTML + images contained in ZIP archive

Placemark Export File Type: GPX, KML

Placemark Import File Types: GPX, KMZ, online download from www.geonames.org (licensed under Creative Commons Attribution 3.0 Unported, creativecommons.org/licenses/by/3.0/)

Route Import File Types: GPX, KML

Training/Track Export File Types: CSV, GPX, KML

Video File Types Supported for Portal Upload: MP4, MOV, MPEG, AVI, 3GP, WMV

Audio File Types Supported for Portal Upload: WAV, MP3

Image File Types Supported for Portal Upload: JPEG, PNG

Route Planning: Online navigation using OpenStreetMap data and JERUSALEM, see http://www.gps-sport.net/routePlanner/jerusalem.jsp (licensed under Creative Commons Attribution-Share Alike 2.0 Generic, creativecommons.org/licenses/by-sa/2.0/)

7.7.Conserving Battery Power

- Normally the biggest power consumer (besides the backlight) in a Smartphone is the GPS module (with built-in GPS devices). It makes sense to turn off GPS when you don't need it (if you disconnect the GPS in **Run.GPS**, the module will be turned off automatically and stop consuming battery power).

- During a training you can turn off WLAN/WiFi because you don't need it. You could also turn off Bluetooth and the phone if you don't need those.

- If you use online features like LiveTracking, loading online maps on demand and so on, the devices GPRS or UMTS connection is often used, which costs really much battery power. Especially if you use LiveTracking and set the interval to 5 sec.

- Turn off the backlight when the application is locked. If you choose "turn off screen completely" the display will be completely dark and the touchscreen deactivated. It can be reactivated only by using the hardware keys.
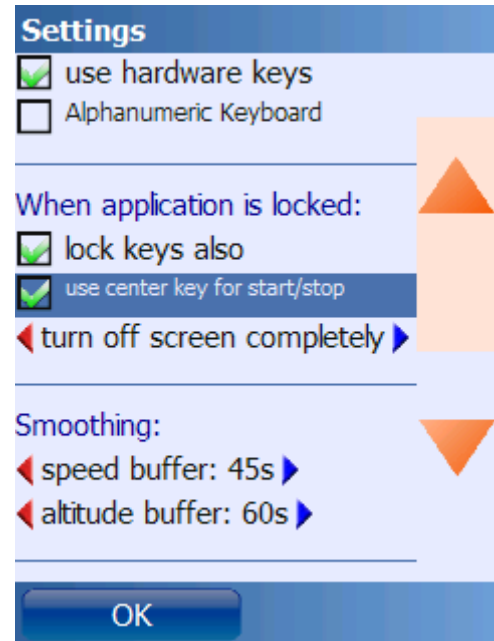
- When the Run.GPS application is not visible (screen turned off or application in background), Run.GPS will use much less CPU power, because it does not need to render maps, values, diagrams etc. This can also save a lot of battery power.

- If these measures are not enough, you might consider using an extra battery or mobile USB charger (e.g. from „Varta").

7.8. How Can I Improve the GPS Reception of my Device?

The quality of the GPS reception depends on the following factors::

- hardware used
- current weather conditions
- current GPS satellite constellation
- how you carry your GPS device (e.g. holding it in your hands worsens GPS reception)

The following measures can lead to an improvement of the GPS signal:

- leave the device lying on the ground in open space for 5 minutes before starting a training activity
- if the GPS reception is very bad and a GPS fix cannot be obtained, reset your device (turn off and then on) and leave it lying on the ground in open space for 20 minutes
- do not carry the device in your hands during a training activity, rather use a neoprene carrier belt or similar
- if present on your device use GPS assisting services, e.g. A-GPS (assisted GPS), QuickGPS, WLAN location service, ...